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City of Sherwood Transit Plan

Keith Benjamin
Portland State University

Gary Berger
Portland State University

Shimon Isreal
Portland State University


Mauricio Leclerc
Portland State University

Ethan Spoo
Portland State University

See next page for additional authors

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Authors

Keith Benjamin, Gary Berger, Shimon Isreal, Mauricio Leclerc, Ethan Spoo, and Carl Switzer



City of Sherwood Transit Plan

June 2002

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Executive Summary

In response to rapid population growth and new development, the City of Sherwood is re-evaluating its transit provision. Working closely with planning staff from the City, six Portland State University Students (the Project Team) gathered information from residents about transit use and desired improvements to existing service.

The Sherwood Transit Project consists of two work products:

1. A Transit Needs Assessment Report (TNAR) that summarizes transit-related findings from: (1) public outreach; (2) research of existing transit serving Sherwood and neighboring jurisdictions; and (3) results of a survey distributed to Sherwood-area residents. This report will assist Sherwood with the update of principal transportation planning documents.

Major findings of the TNAR include: (1) an interest among Sherwood residents for intra-city transit service; (2) a desire for connecting transit service to Tualatin; and (3) a majority of survey respondents expressed overall satisfaction with existing transit service provided by Tri-Met.

2. A Summer Shuttle Pilot Plan designed to provide Sherwood with baseline route, stop, scheduling, and contracting information to implement fixed-route intra-city transit service. Two shuttle routes were developed, one primarily for youth and one designed for use by the general population.

Principal products of the SSPP are: (1) a preferred and alternate youth and recreation summer shuttle route; and (2) a preferred and alternate general-purpose summer shuttle route.

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Introduction

According to the U.S. Census, the population of Sherwood, Oregon grew 281% between 1990 and 2000, making it the fastest growing city in the state. To accommodate this growth, new housing starts have proliferated primarily in the area of the city northwest of Highway 99 West. Commercial development has similarly boomed. Development of retail and services including two shopping centers, a movie theater, and a YMCA facility, has resulted in increased demand for travel to previously undeveloped areas of the city. This growth presents significant challenges to existing transit service and its ability to provide good transportation linkages between the older and newer areas of the city, and between the city and the rest of the region.

This steady population growth has forced Sherwood's planning staff to focus their resources on short-term projects like land use reviews and new development requests, rather than longer-term planning projects. Sherwood's Comprehensive Plan and Transportation System Plan (TSP) were last updated in 1991 and therefore do not reflect the growth-related changes of the last decade. These plans help implement the region's 2040 Growth Concept, and keeping them current is important for maintaining thriving communities and a healthy economy while minimizing the negative effects of growth such as traffic congestion and urban sprawl.

Updating Sherwood's Comprehensive Plan and TSP will help ensure a viable transportation system that accommodates the increased mobility needs associated with new development. As growth management efforts are not localized to a particular community and detached from those that surround it, these planning documents place Sherwood's transportation needs in a regional context.

For their Workshop exit requirement, six Master of Urban and Regional Planning (MURP) students at Portland State University (the Project Team) approached City of Sherwood Planning staff to assist with plan updates. In coordination with the City, the Project Team used a survey to assess citywide and regional transit needs pertaining to Sherwood. The survey was the primary instrument used to assess need, but public outreach, research, and interviews helped the Project Team identify important trends of transit service provision, as well. Opportunities for supplementing existing service and facilitating better transit connections with neighboring communities were also explored.

The City of Sherwood has never completed a transit needs assessment. Tri-Met planning personnel believe that such an assessment is an important first step towards providing effective transit on the district's limited service budget, but that, due to limited staff and financial resources, evaluations of this type have not been performed for many of the smaller jurisdictions served by Tri-Met. (Zatarain, 2002).

As part of its examination of existing transit service, Sherwood planning staff requested that the Project Team design a fixed-route, intra-city summer shuttle. In contrast the existing

Introduction

transit service provides only radial access to and from downtown Portland, whereas the proposed summer shuttle offers residents increased accessibility to destinations within Sherwood. If implemented, the shuttle will increase transit options for all residents, but particularly for people who do not own a car and the city's youth. City staff believes that the shuttle can provide an important service to the community, and help reinvigorate Old Town Sherwood by providing another linkage between it and newer parts of the City. The City would also like the shuttle to have a prominent role in transporting people to the many summer activities and festivals planned within Sherwood. Lastly, the Summer Shuttle is a pilot program that will help the City evaluate the need for future transit system improvements.

At the City's request, the Project Team designed two options for the shuttle service: a Youth and Recreation route oriented primarily around youth activities and destinations and a General-Purpose route that meets the broader transit needs of both youth and adults. This document provides the City of Sherwood with alternatives for both shuttle routes and describes how alternatives were chosen. The youth shuttle service is designed to provide youth more independence to travel to their favorite activity locations throughout Sherwood and to alleviate some of parents' chauffeuring burden. The general-purpose shuttle is designed to connect both adults and children between home, workplace, and other activity destinations throughout Sherwood, and to complement existing Tri-Met service.

The following document consists of two parts with the following elements:

Part I: Transit Needs Assessment Report (TNAR)

- Description of the planning context within which the Transit Needs Assessment Survey was performed
- Existing transit serving Sherwood
- The Transit Needs Assessment survey methodology
- Survey results
- Key transit needs assessment findings

Part II: Summer Shuttle Pilot Plan (SSPP)

- Summer Shuttle Pilot methodology
- Explanation of route alternatives
- Summer Shuttle implementation information
- Conclusions

Profile of Sherwood

This section provides an overview of geographic, demographic and economic characteristics of Sherwood used to inform the TNAR and the SSPP. A description of information collection methods is provided in Appendix B-1.

Geographic Location

Sherwood is located at the southwest edge of the Portland Metropolitan Region. Its major access roads are Highway 99W and Tualatin-Sherwood Road. These two major roads, railroad tracks, power lines, as well as a number of creeks bisect the city. These barriers create challenges to establishing a well-connected street network and more compact land use development.

Outside city limits lay mainly agricultural fields and forested hills, and to the north is the newly designated Tualatin National Wildlife Refuge.

Population

In 2001, the population of Sherwood was 12,840 (PSU Population Research Center, 2002). During the last three decades, the city has experienced continuous population growth. Table 1 shows total population and percentage change by decade. From 1990 to 2000 Sherwood experienced the most rapid population growth of any city in Oregon, increasing 281% from 3,093 in 1990 to 11,791 in 2000.

From 1990 to the year 2000, average population density within the urban growth boundary (UGB) increased 168% from 1,072 to 2,871 persons per square mile (City of Sherwood). The current density is lower than for the region as a whole (3,406 persons per square mile). The City annexed 1.2 square miles from 1990 to 2000, a 42% increase. Sherwood's Planning Director estimates that due to the generous nature of the urban growth boundary, approximately four times as much development took place within the 1990 city limits as in the annexed areas.

Table 1: Sherwood Population 1970-2000

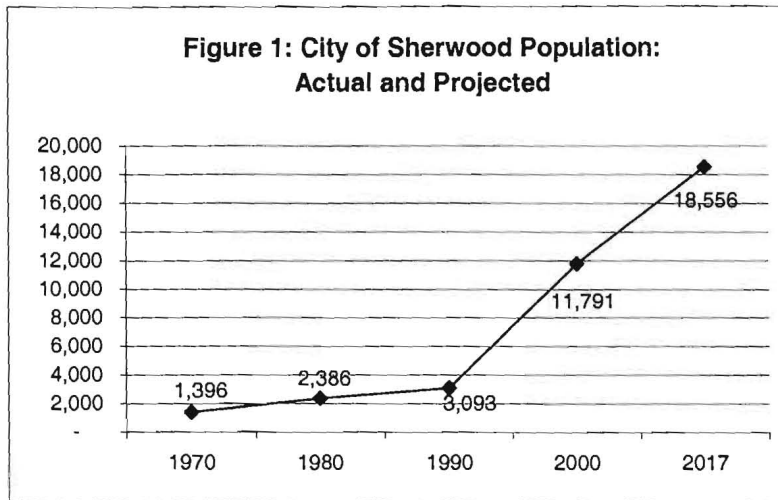
Year	Number of Persons	Percentage Change	Area (square miles)	Density (persons/square mile)
1970	1,396		***	***
1980	2,386	71%	***	***
1990	3,093	30%	2.9	1,072
2000	11,791	281%	4.1	2,871

Source: 2000 Census; Portland State University Population Estimates

Sherwood's population continued to increase by 9% in 2001. Metro's *2017 Regional Forecast and TAZ Allocation* estimates that by 2017 Sherwood's population will grow to

Profile of Sherwood

18,556, a 57% increase. This growth is higher than the 44% population growth expected for the region in 2017 (Metro 1999, U.S. Census).



During the late 1990s, the City's population surpassed 10,000--the population threshold considered necessary to sustain fixed-route transit service (City of Florence 2000, Spear, Weil 1999).

Age Distribution

The majority of Sherwood's residents are clustered in two distinct age brackets: one comprised of children ages 14 and younger, and another ranging from ages 25 through 44. According to the 2000 Census, 28% of the population are 14 or under, and 41.1% of the population are 25-44. The median age is 31. Table 2 shows the age distribution within the city. Families with children under 18 are a large group, as 1,971 (46%) of all households belong in this group.

The proportion of children 14 and younger (28%) is larger than that of the metropolitan region (20%). Seniors ages 65 and over comprise only 5.3% of the population, substantially lower than in the region, where they account for 14.6% of the population.

Table 2: Sherwood Age Distribution (2000)

Age Bracket	Number of Persons	Percentage of Total
under 5	1,351	11.5%
5-9	1,134	9.6%
10-14	838	7.1%
15-19	588	5.0%
20-24	467	4.0%
25-34	2,623	22.2%
35-44	2,231	18.9%
45-54	1,274	10.8%
55-59	396	3.4%
60-64	266	2.3%
65-74	350	3.0%
75-84	217	1.8%
85 and over	56	0.5%
Total	11,791	100%

Source: Census 2000, Table DP-1

Employment, Income and Poverty Rate

Sherwood businesses provided 2,304 jobs in 2001 (RLIS 2001). From 1990 to 2000 the City experienced significant changes in its median household income and poverty rate. Median household income increased from \$35,010 to \$62,518, and the percentage of people living in poverty fell from 9% in 1990 to 3% in 2000. This compares favorably to the median household income for Washington County (\$54,109) and the county's poverty rate (8%). Income and poverty data for the region is not yet available from the U.S. 2000 Census. Table 3 shows a distribution of employment by industry. "Services" represent the largest employment sector, accounting for 30% of all jobs within the area, followed by manufacturing (23%) and construction (15%).

Table 3: Sherwood Total Employment by Industry

Industry	Average Number of Employees	Percentage of Total
Agriculture	169	7%
Construction	357	15%
Manufacture	540	23%
Retail	277	12%
Services	689	30%
Other	110	5%
Wholesale	164	7%
Total	2,307	100%

Source: Metro RLIS 2001

Metro projects a 313% increase in Sherwood employment from 1994 to 2017. This growth is slightly higher than the 302% population growth projected during the same time period (Metro 1999). Table 3 compares Sherwood's employment in 1994 with projected

Profile of Sherwood

employment for 2017. Employment growth in Sherwood is expected to be much higher than for the region (61%). Table 4 compares 1994 employment with that projected for 2017.

Table 4: Sherwood Non-farm Employment Forecast

Year	Number of Employees	Percent Change
1994	2,309	
2017	9,542	313%

Source: Metro 2017 Regional Forecast (1999)

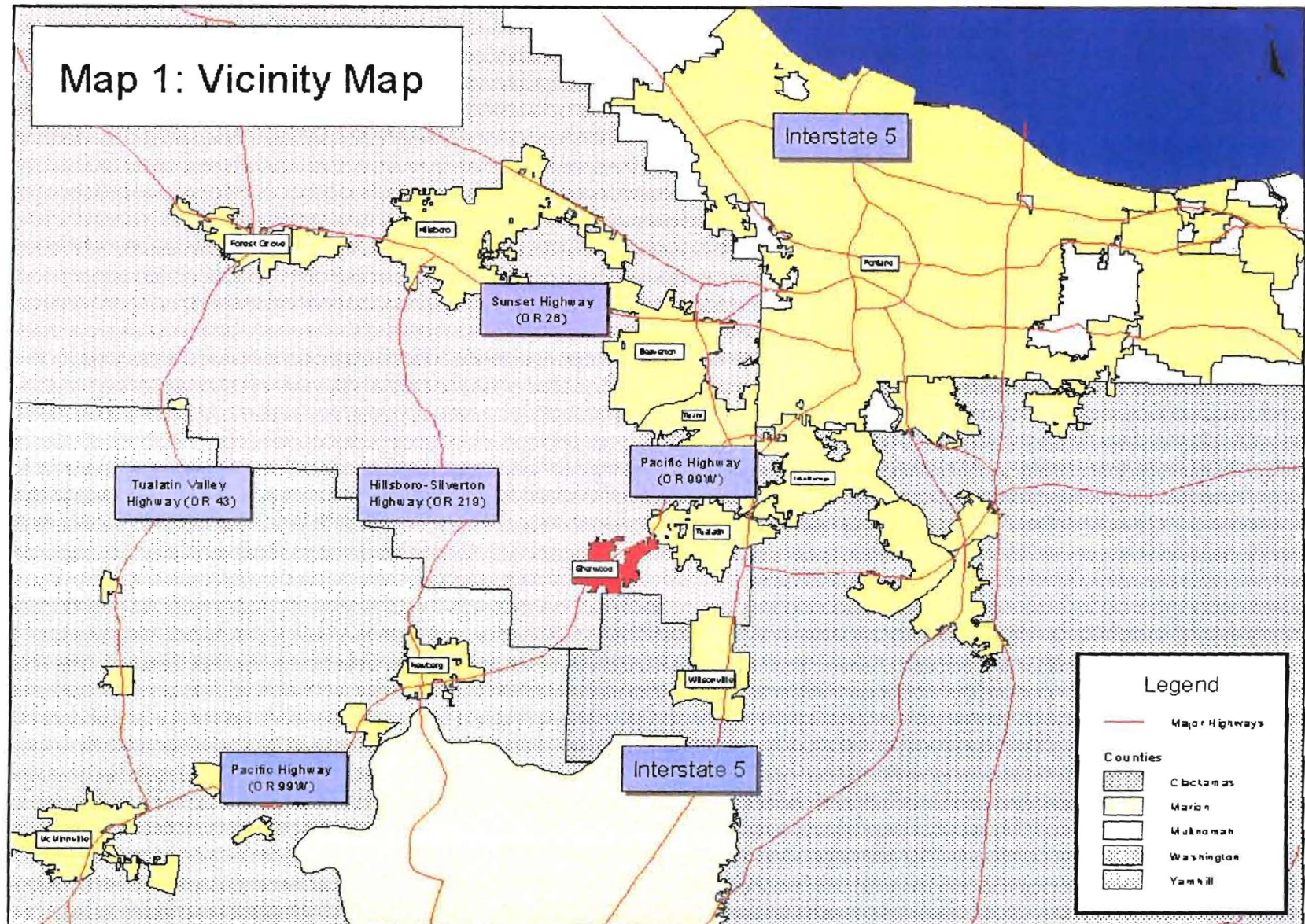
Findings

Projections by Metro suggest population and employment growth that outpaces the metropolitan region as a whole. Sherwood's growth between 1990-2000 brings the city's population and density above the minimum thresholds necessary to sustain fixed-route transit service (City of Florence, 2000; Spear and Weil, 1999). Continuing population growth may increase the need for improved transit service.

The number of residents with characteristics of transit dependency has increased in the last ten years. Although the percentage of seniors in Sherwood decreased from 1990 to 2000, their total number increased 77%. Similarly, the poverty rate is lower in 2000 than it was in 1990, but the total number of people in poverty went up by 27%.

In addition, children younger than the legal driving age (15 years) form a large percentage of Sherwood residents. Twenty percent of Sherwood residents are under the age of nine. As this cohort grows older, the need for transit service will likely increase.

Map 1: Vicinity Map



Transit Needs Assessment Report

The TNAR contains the first of two subsections of this document. The Report seeks to identify existing transit service, identify residents' level of satisfaction with current transit provision, and discover unmet transit needs. A section on Sherwood's planning context for transit service is also provided. Conclusions and recommendations were based on input from all these areas.

Methodology

The methodology for this Report relied on four sources of information :

- An analysis of Sherwood's Comprehensive Plan and Transportation System Plan. Sherwood's planning efforts relating to transit provision were analyzed.
- Current transit service in Sherwood and neighboring jurisdictions. Sherwood's Tri-Met service was examined, as were transit services provided by agencies in Wilsonville, Tualatin, and Newberg.
- A Transit Needs Assessment Survey. Input from the community about current transit service and needs was collected, analyzed, and summarized.
- Demographic and economic information.

Sherwood Plan Updates

One of the primary outcomes of the Transit Needs Assessment Report (TNAR) is developing transit-related findings for the update of Sherwood's Comprehensive Plan and Transportation System Plan (TSP).

Sherwood's reliance on other jurisdictions for jobs and its peripheral location in the metropolitan region make Sherwood dependent upon the regional transportation system. Additionally, many of Sherwood's principal arterials -- including 99W, Tualatin-Sherwood Road, and Elwert Road -- are maintained by the State and Washington County, making regional and intergovernmental cooperation critical for transportation improvements in Sherwood.

At the regional level, those influenced by (and have influence on) Sherwood's transit goals include Metro; the Oregon Department of Transportation (ODOT); Tri-Met; Multnomah, Washington and Clackamas counties; and neighboring jurisdictions.

At the local level, Sherwood's Comprehensive Plan and TSP are the primary planning documents used by the City to implement transit goals. While further coordination with other jurisdictions will be necessary to link the city to the regional transit network, the results of this needs assessment report, and subsequent update of Sherwood planning documents, are important first steps towards addressing potential transit need.

Comprehensive Plan Update

The Comprehensive Plan contains goals, policies, and objectives for the City of Sherwood's public transit system. State law requires that major development decisions be consistent with the Comprehensive Plan. For this reason it is necessary that any transit improvements be consistent with the Sherwood TSP and Comprehensive Plan. Periodic review was last completed in 1990 and adopted in 1991. Primary plan policies that relate to public transit include:

- *Re-evaluation of the public transportation system as development occurs.* The transit needs assessment report helps satisfy this requirement by providing baseline information that can be used for such a re-evaluation.
- *Coordination with Tri-Met to provide transit to all parts of the city through the establishment of Park-and-Ride lots and expanded routes.* Use of the Transit Needs Assessment Survey helps with the identification of specific transit needs for recommended route expansions. It also helps with the identification of potential new park-and-ride lots that may help provide motorists with increased convenience to connect to transit, where such linkages did not previously exist.
- *Expansion of connections to regional rail.* As part of the needs assessment, the Project Team has helped to identify opportunities to connect Sherwood to the Wilsonville-Beaverton Commute-Rail Project, which has a scheduled completion date of 2004.
- *Enhancement of existing transit to serve southern areas of the city, and to connect to Tualatin.* Recommendations about such enhancements to existing service are based on the results of the survey and research performed as part of this project.

Transportation System Plan

The Transportation System Plan (TSP) is a State-mandated transportation document required to be updated every 5 years to reflect community changes. Sherwood's most recent Transportation Plan Update (TPU) was completed in 1991, and was incorporated into the City's Comprehensive Plan as the Transportation Element, a subset of policies that provides the framework for developing and implementing transportation plans and projects in the City. The TPU does not reflect recent transportation changes in Sherwood. While it includes new information about the Tualatin-Sherwood/Edy Road and Six Corners road construction projects, it does not reflect recent changes to transit provision within Sherwood. The Transit Needs Assessment Report will assist Sherwood with the task of updating their TSP.

Near-term goals identified in the TPU relating to transit provision include a re-routing of transit service within Old Town Sherwood, placement of a bus shelter and a park-and-ride facility near the intersection of Railroad and Washington Streets, and enhanced service to downtown Portland via 99W, King City, Tigard, and Barbur Boulevard. These goals have since been met. The additional near-term goal of feeder bus service from Sherwood to the Tualatin park-and-ride at the I-5 Lake Grove exit has not been met. Mid- and long-term

goals for the transit system identified in the TPU focus on better integration of Sherwood into the regional transit system, including links to regional light and heavy rail. Sherwood's existing transit service, and opportunities for supplementation based on survey results, will be described in later sections.

Existing Transit Service

Existing Transit Service

Tri-Met

Three Tri-Met lines serve Sherwood. Bus line #12 offers continuous service throughout the day approximately every 15 minutes. Two additional lines, the #94X and #95X, are express lines that run during the A.M. and P.M. commute times (Map 2). Morning service is restricted to Portland, while evening service is only provided to Sherwood from Portland. Table 5 shows bus line characteristics.

Table 5: Tri-Met Lines Serving Sherwood

Bus Line	Direction	Approximate Frequency (min.)	Hours of Operation	Weekend Service (Y/N)	Express (Y/N)
#12 Barbur	To Portland	15	4:39 a.m.-11:39 p.m.	Y	N
#12 Barbur	To Sherwood	30	6:19 a.m.-11:24 p.m.	Y	N
#94 Sherwood/Pacific Hwy. Express	To Portland	8-13	5:54 a.m.- 7:42 a.m.	N	Y
#94 Sherwood/Pacific Hwy. Express	To Sherwood	9-14	3:48 p.m.-6:54 p.m.	N	Y
#95 Tigard/I-5 Express	To Portland	13-22	6:10 a.m.-7:09 a.m.	N	Y
#95 Tigard/I-5 Express	To Sherwood	18-30	3:22 p.m.-5:31 p.m.	N	Y

Source: Tri-Met

All bus lines connect Sherwood with Tigard and downtown Portland along Highway 99W and Barbur Blvd., except for #95 which goes from Highway 99W to I-5. All lines travel on Sherwood Road and do a small loop in Old Town Sherwood. The stop at Washington and Railroad is the terminus for all lines.

Frequency of service for the #12 line was improved in September 2001 from 30 minutes to 15 minutes, helping to meet a near-term goal of the transportation plan update (Zatarain, 2002). This has resulted in a 34% increase in weekday ridership, 52% increase in Saturday ridership, and 82% increase in Sunday ridership.

Table 6 shows weekday passenger activity within Sherwood for the three lines (Tri-Met 2001). There are currently 23 bus stops in Sherwood. Bus line #12 carries two thirds of all passenger activity.

Table 6: Tri-Met Weekly Boarding Activity within Sherwood

Bus Line	Ons	Offs	Total	% of Total	Lift*
#12	205	156	361	66%	34
#95	45	33	78	14%	1
#94	57	55	112	20%	6

Source: Tri-Met 2001

* Note: Lift numbers reflect monthly use.

"Ons" refer to ridership within Sherwood. "Offs" show riders from within as well as outside Sherwood getting off in Sherwood.

There are two Park and Ride locations within the city. One is located at the intersection of Railroad and Washington and the other is on Tualatin-Sherwood Road in the parking lot of Regal Cinemas. According to Tri-Met counts, on an average day the Old Town park-and-ride has 26 of 30 occupied spaces, and the Regal Cinemas park-and-ride has 20 of 50 occupied spaces.

Tri-Met also provides demand/response service, named LIFT, to Sherwood. Tri-Met buses offered their LIFT service 41 times a month.

Wilsonville SMART

Wilsonville's SMART (South Metro Area Rapid Transit) provides four bus lines on weekdays and one weekend bus line. Line 201 goes to the Barbur Transit Center, Line 203 is a Wilsonville circulator. Line 204 travels along Wilsonville Road all the way to Tualatin (the nearest stop to Sherwood) and operates on Saturdays, as well. Line 1X is an express bus to Salem with AM/PM peak service. All buses are free to riders and financed by an employee payroll tax.

Tualatin TMA

The Tualatin Chamber of Commerce created the Tualatin Transportation Management Association (TMA) to provide local employers with additional transportation options for their employees.

There are two routes for the TMA shuttle (Map 3). One shuttle provides peak time service between key Tri-Met stops and participating worksites in Tualatin, in an effort to encourage employees to use transit instead of driving.

The second route is called the Early Bird Express and provides service between downtown Portland and Tualatin. The Early Bird Express departs from downtown Portland at 5:30 a.m., arriving in Tualatin before 6:00 a.m. Evening return service to Portland is provided via standard Tri-Met service.

There is no cost to employees to ride the TMA shuttle as long as their employer is a member of the TMA. Riders who work for non-member companies pay \$0.50 per ride. TMA and Tualatin Chamber of Commerce business members finance the shuttle's operation.

Newberg LINK, LINK Express, and Town Flyer

The Chehalem Valley Senior Citizens Council of Newberg provides transit service via three routes (Map 4). The first is a shuttle called LINK which travels between McMinnville and Sherwood with stops in Sherwood, Newberg, Dundee, Dayton, and Lafayette and McMinnville. LINK stops in Old Town Sherwood and at 12th and Sherwood Boulevard three times in the morning and three times in the evening at each of the locations. It also stops at

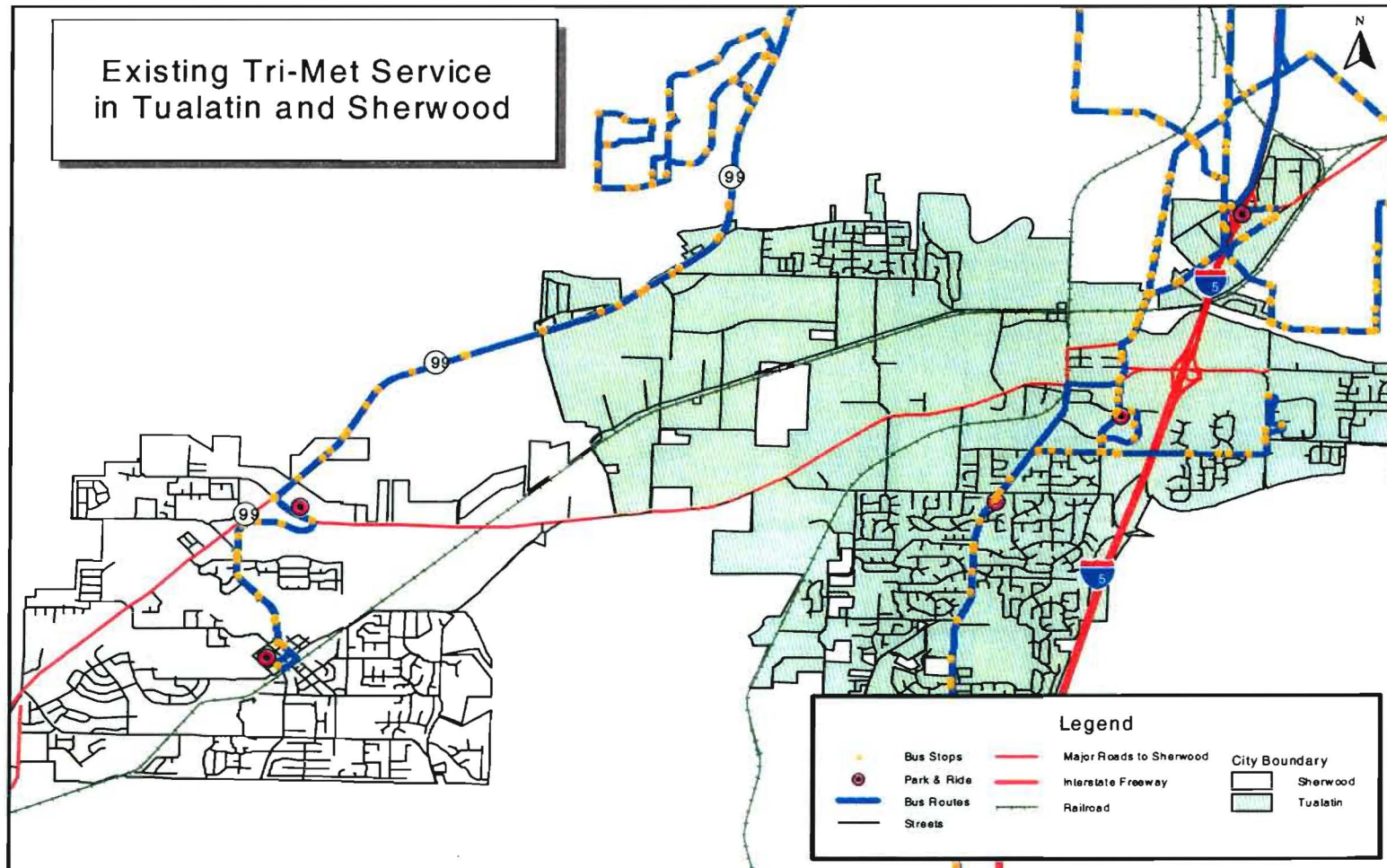
Existing Transit Service

Meridian Park Hospital in Sherwood. The fare for the LINK shuttle is \$1.00 per zone for a one-way trip.

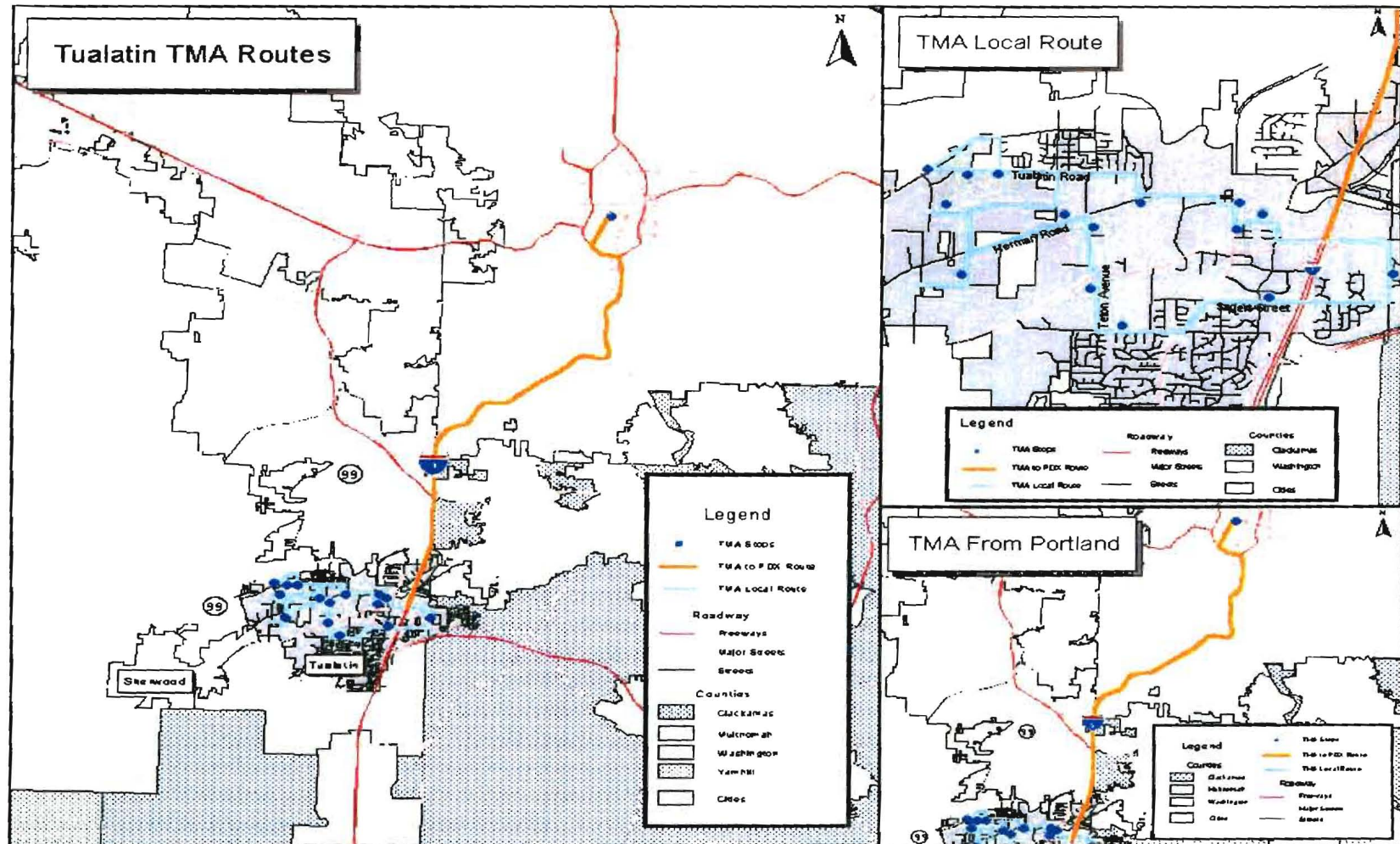
LINK EXPRESS travels between Newberg and the Hillsboro MAX station in the early morning and returns from Hillsboro in the evening via Gaston. Fares for the LINK EXPRESS are the same as the regular LINK shuttle.

The Newberg Town Flyer shuttle is an intra-city circulator, and gives access to 30 locations within Newberg. The fare for the Town Flyer bus is \$0.75 each way with discounts for seniors and children.

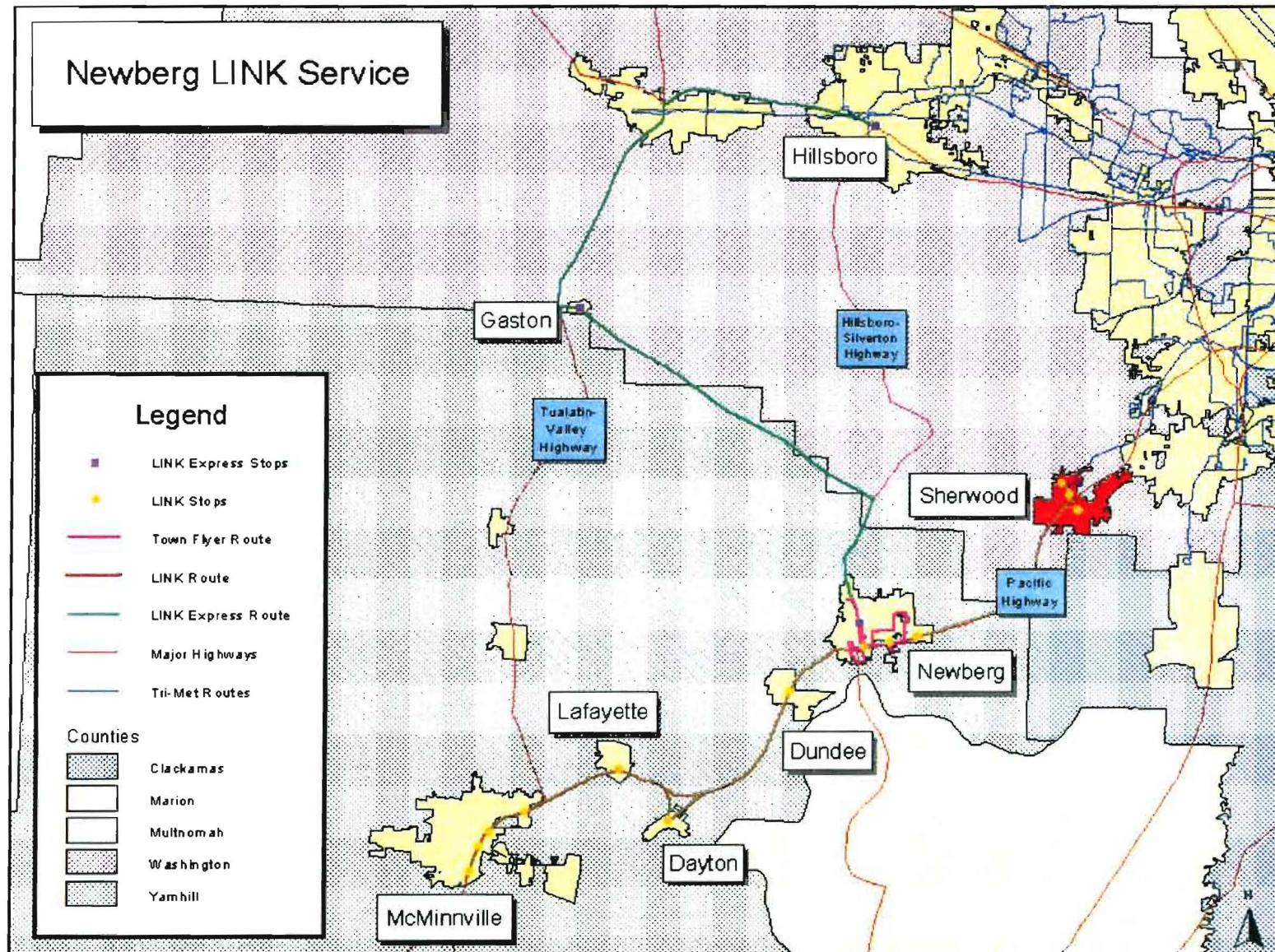
Map 2: Existing Tri-Met Service



Map 3: TMA Shuttle (Tualatin)



Map 4. Newberg Shuttle Service



Transit Needs Assessment Survey Methodology

The Transit Needs Assessment Survey was used as the primary tool for collecting information about transit use and unmet demand in Sherwood. The Sherwood Gazette was recommended by City staff as an appropriate means of distributing the survey. The paper has a circulation of 9,300 (8,000 as direct mail and 1,300 distributed at free newspaper boxes around Sherwood) and is read by both Sherwood residents and households in neighboring communities with members who work and/or patronize services within Sherwood.

Copies of the survey and return drop boxes were also distributed to important civic and recreational institutions in Sherwood: the YMCA, City Hall, the Sherwood Public Library, and the Sherwood Senior Center. Respondents had the option of returning surveys to one of these drop box locations or via mail. Requiring respondents to pay the postage for mailed surveys minimized agency expenses associated with survey distribution.

A conservative statistical approach, based on Sherwood's population of approximately 13,000, was adopted for administration of the survey, requiring that approximately 400 surveys be collected for representative results. To meet this goal, Project Team members supplemented a low initial mail-in and drop box response rate by collecting surveys at public outreach events. On April 13, 2002 surveys were collected at the YMCA Healthy Kids Day event, and also on May 4, 2002 at the City's of Sherwood's Community Services Fair, also held at the YMCA. These events were chosen because of the wide cross-section of people that patronize them; YMCA management estimates that approximately 50% of the city's population are members and the Community Services Fair is one of the City's most attended events. Surveys were also collected at the Sherwood Plaza Albertson's, which is a major shopping destination. An additional 300 surveys were distributed door-to-door in residential neighborhoods to solicit further survey responses.



Transit Needs Assessment Survey Results

There are four parts of the Sherwood Transit Needs Assessment Survey: Demographics, Existing Tri-Met Service, Potential Intra-City Service and a general, open ended question about improving service in Sherwood.

The demographic questions in the survey were intended to inform the project of what cross-section of the population was actually reached during survey distribution and collection, and to analyze potential transit trends based on respondent's characteristics.

In order to understand more about Tri-Met users in Sherwood, the survey included three questions regarding current Tri-Met service. One objective of these questions was to understand the satisfaction level with current service and to get a rough idea of frequency of use of the three Tri-Met routes.

The third part of the survey asked respondents to consider the potential of an intra-city transit service. These questions were included on the survey to gain insight on how likely residents would be to use such a service and what destinations they would like to have it serve.

The final question was the respondent's opportunity to write a candid response to an open-ended question in regards to what they thought about current transit service, how it could be improved and their ideas for future transit possibilities. Respondents' answers were coded and can be found in Appendix F.

This section of the report gives a question-by-question discussion of survey results and identifies major trends apparent in the data.

Demographic Questions

Question One: What is your age?

The survey was designed to target adult respondents, although a small number of youth under age 18 completed the survey. Ninety-seven percent of respondents were over the age of 18. For reference, age and gender compositions of Sherwood residents according to the 2000 Census is also listed.

Examining Table 7, we can see that the majority of respondents fit into the age category 35-65. In the Sherwood population, only 36% of people fit into this category. Young adult and youth populations chose not to fill out the survey in the same proportions that they make up of the population. However, the feelings of younger Sherwood residents were captured in the Summer Shuttle Plan portion of the project.

Question Two: Gender

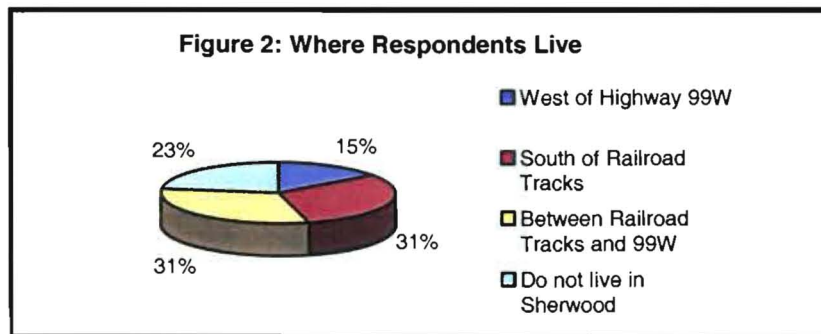
More women than men completed the survey (Table 7). The explanation for this is that the survey was taken on a self-selecting basis. Nationally, women compose 64% of transit riders in cities with 50,000 people or less (APTA, 1992). It is possible that women in Sherwood have a greater interest in transit and would be more likely to complete the survey.

Table 7. Age and Gender of Respondents Compared With Census Data

	Responses	Percent	Population %
Age Group			
Under 13	1	0%	26%
13-17	12	3%	6%
18-25	20	6%	7%
26-34	66	19%	21%
35-65	201	57%	36%
Over 65	51	15%	5%
Gender			
Male	139	40%	49%
Female	210	60%	51%

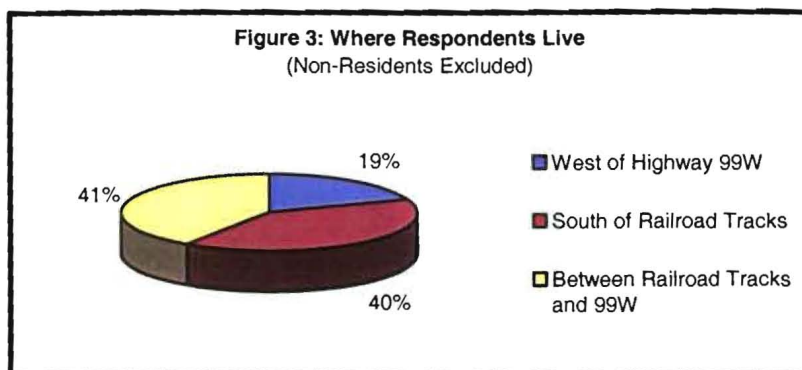
Question Three: What part of Sherwood do you live in?

Respondents were given four choices to select from: West of Highway 99, between the railroad tracks and Highway 99, South of railroad tracks and Outside Sherwood city limits. The two locations with the highest responses were both south of Highway 99 West. The data was compared with actual Census data.

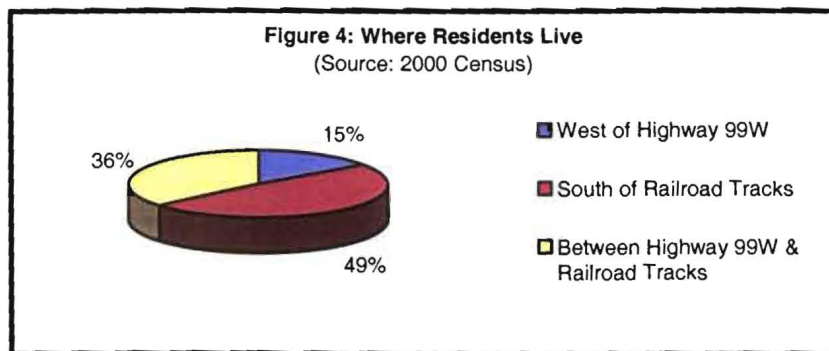


Transit Needs Assessment Survey Results

In order to make the comparison with Census data, the choice “Do not live in Sherwood” had to be excluded, because the Census does not list the number of people who live outside of Sherwood’s borders. Thus, Figure 3 is percent of respondents who live in the three areas as a percentage of all survey respondents. Figure 4 is the 2000 Census data showing the percentage of people who live in these areas as a percentage of the total population in these areas.

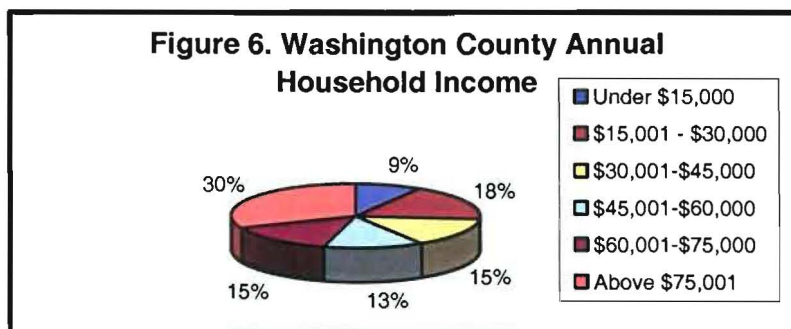
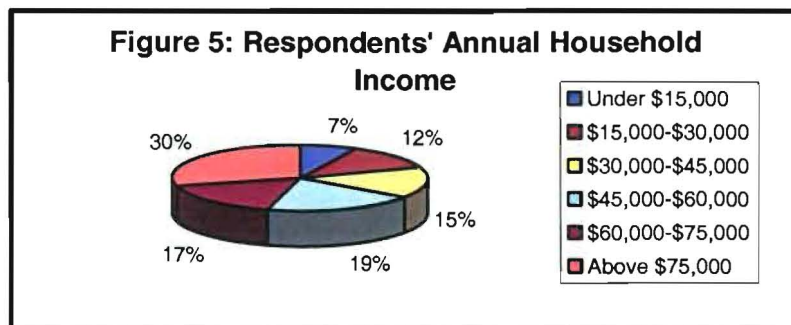


Figures 3 and 4 show considerable similarity in distributions, as evidence that the survey results match the actual distribution of residents in Sherwood fairly closely, giving credence to the data.



Question Four: How would you classify your yearly household income?

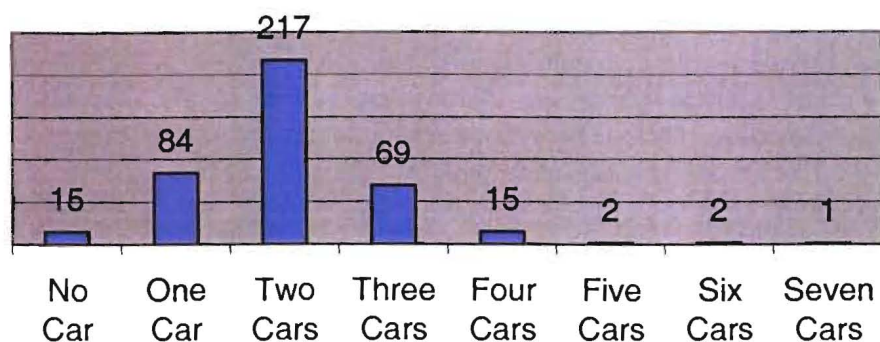
Sherwood survey respondents' incomes are somewhat higher than Washington County's average, as 67% of survey respondents reported an annual household income of over \$45,000 compared to only 58% countywide. Oregon's median household income is \$38,807, significantly lower than that of survey respondents or Washington County. Nationally, those with higher incomes are less likely to ride transit. Survey respondents are an exception, as those reporting household income of \$75,000 or more comprise the highest percentage of transit users. In fact, there is a positive correlation with income and transit use by survey respondents. As income increases, respondents were more likely to use transit. Furthermore, those households earning \$75,000 or more comprise the largest group of individuals who said they use transit on the survey, with over ¼ of riders coming from this income classification. This demonstrates that there may be support for a work destination shuttle similar to the Tualatin TMA shuttle.



Question Five: How many vehicles does your household have?

A vast majority of respondents (96%) have at least one car for their household. According to the 2000 U.S. Census, Sherwood's average household size is 2.77, above the Washington County average of 2.57 people per household. The large average household size and high income (question four) explains why 75% of Sherwood's households have two or more cars.

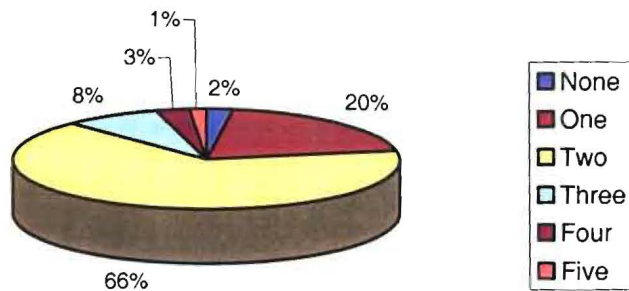
Figure 7: Number of Cars in Household



Question Six: How many licensed drivers are there in your household?

Two licensed drivers per household is the most common response. The 2000 U.S. Census shows that married couples head 66% of Sherwood's households, and households with families predominate. Because most locations in Sherwood are not served by transit, it is reasonable to expect that both parents have vehicles. In Question five, 96% of households reported having at least one available vehicle. In Question 6, 98% of households have at least one licensed driver. This indicates that not all licensed drivers have an available vehicle to use, making them dependent on public transit, friends, or family to meet their transportation needs.

Figure 8: Number of Licensed Drivers in Household



Question Seven: Indicate where you work at least part time.

Respondents were asked to mark all applicable destination options among Sherwood, Wilsonville, Tualatin/Tigard, Portland, Beaverton, Salem and "Other". Most respondents reported working outside the city, indicating that Sherwood is an employee exporter. The most frequently cited workplace destination for workers responding to the survey was Portland followed by Sherwood. Beaverton/Hillsboro was a significant regional workplace destination. Of the "other" responses Newberg was the most frequently chosen employment location with 12 respondents saying they worked there.

Interestingly, those employment locations near Sherwood (Tualatin and Newberg) and including Sherwood itself had an equal response rate as those areas far from it. This fact suggests that survey respondents find an equal need to have connections to nearby destinations as to regional destinations.

Table 8. Employment Locations

Employment Locations	Responses	Percent
Portland	108	31%
Sherwood	95	28%
Tualatin/Tigard	83	24%
Other	56	16%
Beaverton	38	11%
Wilsonville	19	6%
Salem	8	2%
Total Responses	345	100%

Existing Transit Service Questions

Questions 8 and 9 pertain only to respondents who use existing transit service.

Question Eight: If you use existing Tri-Met bus service, which route(s) do you use, where do you go, and how often?

Respondents who use Tri-Met were prompted to fill in a matrix describing their typical transit use. About 70% of survey respondents did not respond to this question, suggesting that they do not use transit. The 30% of respondents that filled out the question indicated that they use transit service at least once a month. While 30% may seem low, the national average for transit ridership is less than 5% of a population.

The #12 bus is most frequently used for trips to downtown Portland on a daily basis. The #12 bus is also used for occasional trips within Sherwood. The 94X and 95X are used primarily for daily commutes to downtown Portland.

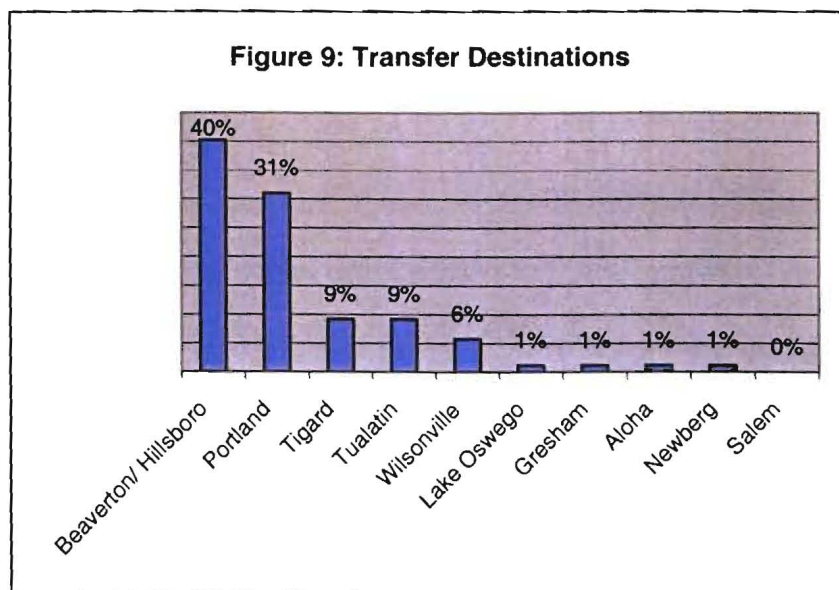
Transit Needs Assessment Survey Results

Table 9: Existing Transit Ridership												
Tri-Met Bus Route	Sherwood				Portland				Tualatin/Tigard Area			
	More than 1 trip/day	1 trip/day	More than 1 trip/week	More than 1 trip/month	More than 1 trip/day	1 trip/day	More than 1 trip/week	More than 1 trip/month	More than 1 trip/day	1 trip/day	More than 1 trip/week	More than 1 trip/month
#12	8	10	18	20	3	14	18	26	5	3	15	17
#94X	2	17	5	7	5	18	9	11	2	2	1	4
#95X	2	10	3	9	6	14	9	12	1	1	2	5

Question Nine: If you transfer from one of these buses, what is your final destination?

Destinations accessible to bus riders leaving Sherwood are limited. If a rider's final destination is not served by any of these lines, the rider is forced to transfer to other buses.

Destination options for Question Nine were Wilsonville, Beaverton/Hillsboro, Salem, and "Other."

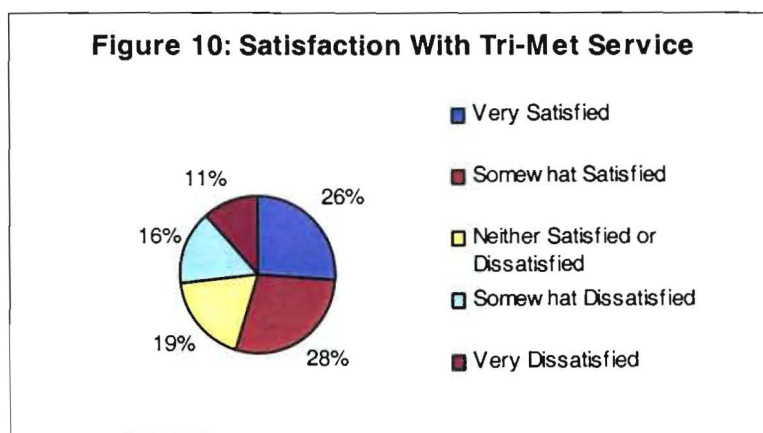


81% of respondents did not complete this question. Of those who responded to the "Other" category, Tualatin, Portland and Tigard were the most common destinations. Beaverton and Hillsboro received 45% of responses, but only 13% of respondents indicated they worked in

Beaverton/Hillsboro area on Question 7. In other words, the Beaverton/Hillsboro area is the most important destination for transit riders, but a somewhat less important destination for workers as a whole.

Question Ten: How satisfied are you with existing Tri-Met service?

54% of respondents are either somewhat or very satisfied with Tri-Met's service in Sherwood. Only 27% expressed some level of dissatisfaction with Tri-met service. Of those who are somewhat or very dissatisfied, there is no dominate trend in the data as to why they are dissatisfied.

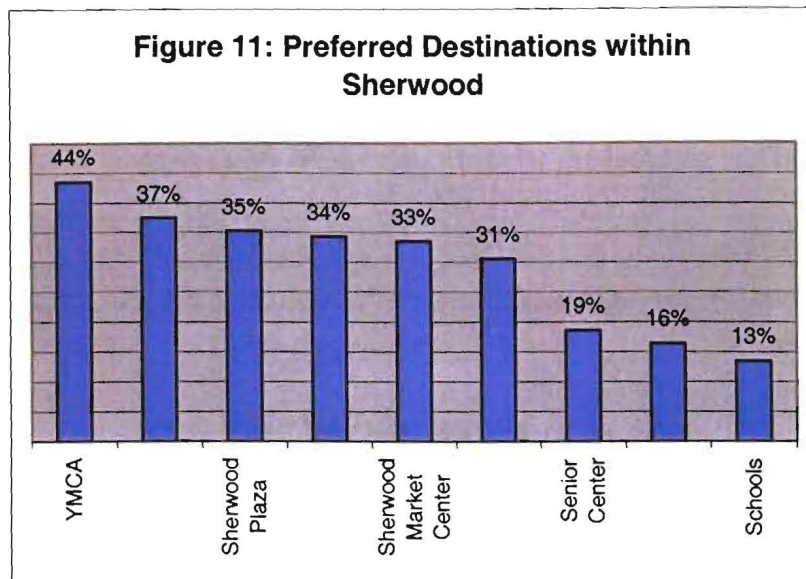


Questions About Desired Service Within Sherwood

The next four questions are prefaced with the statement "If the City of Sherwood offered transit service that served destinations only within Sherwood:"

Question Eleven: Where would you like the bus to go?

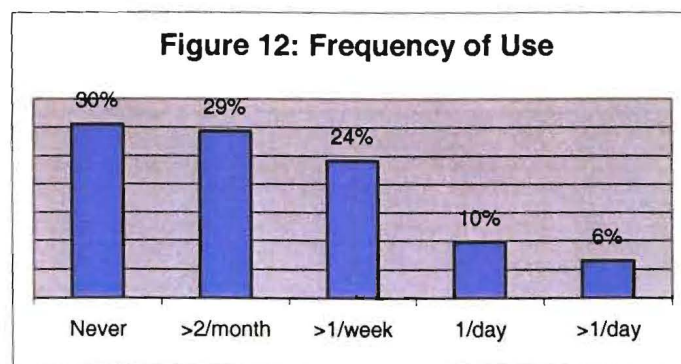
Respondents were given several destination options and a write-in "other" option.



The YMCA was identified as the most desirable location served by intra-city transit service. Sherwood. Regal Cinemas, Sherwood Plaza, Old Town, Market Center, and the Library received similar levels of response. The most frequent write-in responses for the "Other" option were specified local commercial destinations, apartment complexes, and churches.

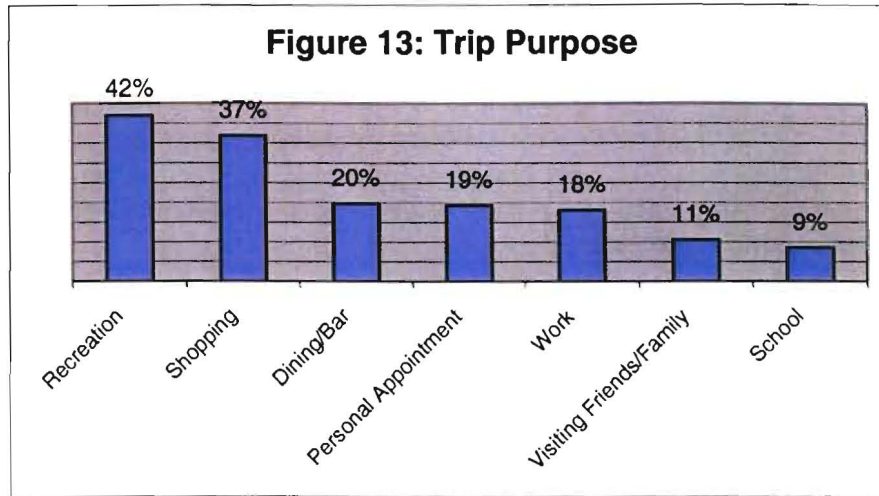
Question Twelve: How often would you use this service?

Respondents were instructed to mark the option that best matched their potential frequency of intra-city transit use.



While 30% of respondents said they would never use such a service, about 70% said they would use it at least twice a month. Over 50% said they would use it on an occasional basis, but not as often as once per day, suggesting that the shuttle would be used for non-commuting purposes such as shopping and recreation. Respondents who answered 'Never' were instructed to skip to Question 15.

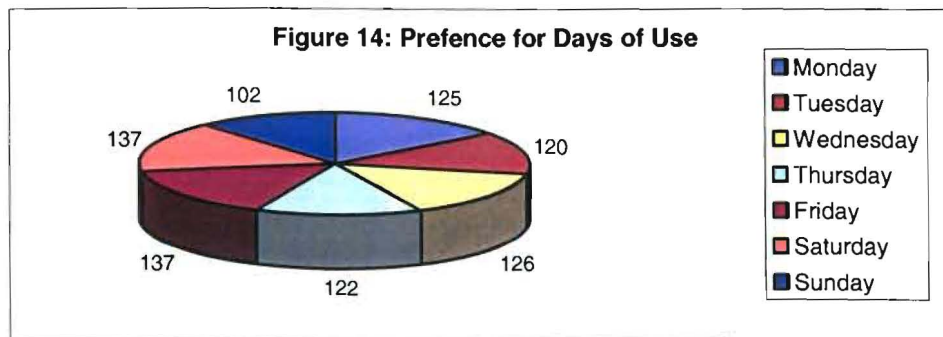
Question Thirteen: What would you use this service for?



The most common responses were shopping and recreation. Only a small percentage of respondents stated they would use this service to commute to work. The high percentage of respondents who said they would use it for recreation and shopping supports the theory that the shuttle would be more of a community service than a way to get to work.

Question Fourteen: On what days would you use this service?

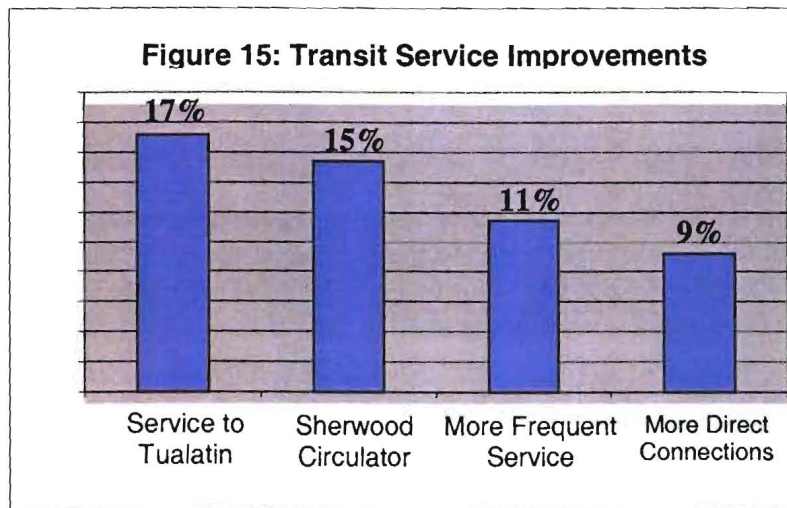
Respondents were given the option to select any or all days of the week. Friday and Saturday were the most frequently chosen answers, but only marginally so. There was little variation in the number of respondents who would use the service on any given day of the week. The higher response rates for Friday and Saturday correlate with the idea that people would be more likely to use it for recreational and shopping purposes.



Open-Ended

Question Fifteen: What can be done to improve transit service in Sherwood?

A complete text of responses to Question 15 is coded, tallied, and included in Appendix F. Desire to see a connecting service between Sherwood and Tualatin and an intra-city circulator within Sherwood were the two most frequently cited responses. Neither of these services are currently provided by Tri-met. A desire to see more frequent transit service was the third most common response.



Opportunities for Connections With Other Communities

Survey results indicate a strong interest among respondents for connecting existing transit service within Sherwood to transit services in other jurisdictions. This section describes how unmet demand for this type of transit service might be met with better regional connections.

Tualatin

According to the Sherwood Transit Needs Assessment Survey, many Sherwood residents work in Tualatin. Approximately 25% of survey respondents indicated that they work in the Tualatin/Tigard area. Additionally, the most frequent answer to question 15 about how existing transit could best be improved was a desire to see transit service to Tualatin. Similar sentiments were expressed by respondents during public outreach at the YMCA.

Tri-Met buses serving Sherwood do not serve Tualatin-Sherwood Road. Respondents indicating a high level of dissatisfaction with existing Tri-Met service also tend to work in Tualatin. Many Sherwood residents work, shop, access services, and do business in Tualatin. Several large employers, as well as banks, restaurants, grocery stores, clinics, and other important services are located along Tualatin-Sherwood Road.

Sherwood's planning staff wants to reduce PM peak commuter traffic that congests Tualatin-Sherwood Road. Providing service that connects with Tualatin's TMA shuttle may be an important option to explore. The TMA service area does not currently extend to Sherwood.

Connection with this neighboring community will become more critical in the future. In 2004, Tualatin will be one of five stops along the Wilsonville-Beaverton Commuter Rail Line. A station and park-and-ride will be located near Tualatin-Sherwood Road and Lower Boones Ferry Road. There will be a greater demand from Sherwood residents to travel to Tualatin to access the Commuter Rail Line. The Commuter Rail Line is expected to bring employment to the area around the new station, which also may induce new travel demand. Sherwood residents will want greater access to regional destinations like Wilsonville and Beaverton.

Newberg

Although respondents indicated little desire to travel to Newberg for job purposes (Question 7), Sherwood residents did indicate that they go to Newberg for shopping and recreation. The LINK shuttle provided by the Senior Citizens Council in Chehalam Valley already connects Sherwood with the Newberg area (see Existing Transit).

Wilsonville

Only a small fraction of survey respondents indicated that they work in Wilsonville (Question 7) or said that it was an important transfer destination (Question 9). Wilsonville's SMART bus system gives access to Salem and Oregon City, as well. SMART can be

Opportunities for Connections With Other Communities

currently accessed by taking Tri-Met route 12 or 94x and transferring at the Barbur Transit Center.

Although Wilsonville is a relatively less important work or transfer destination among respondents as compared with other locations, Sherwood could make better the connection with Wilsonville by strengthening the connection with Tualatin. SMART bus line 204 stops in Tualatin. Once in Wilsonville, riders can transfer to buses that take them to Oregon City or Salem. However, when the new Wilsonville-Beaverton Commuter Rail Line opens, Sherwood residents may be able to get to Wilsonville more quickly by train than by SMART bus, depending on the time of day. The Commuter Rail Line will only operate in morning and evening peak hours on a half hour schedule. In either case, whether transit riders choose to use SMART or the Commuter Rail Line to get to Wilsonville, some type of connection with Tualatin is the simplest way to get them there.

Portland

The most frequent work location response from the survey is Portland (Question 7). Tri-Met currently provides service between Sherwood and Portland. See the “Existing Transit Service” section of this document for a full description of Tri-Met services. Portland will likely continue to serve as Sherwood’s most important work destination in the foreseeable future. Keeping the connection with Portland strong looking for ways to improve it through discussions with Tri-Met will be important for Sherwood.

Beaverton/Hillsboro

Beaverton/Hillsboro was the third most frequently chosen work destination by survey respondents. More importantly, however, the Beaverton/Hillsboro area was the single most chosen destination by those respondents who said that they have to transfer from one of the three Tri-Met buses that serve Sherwood. In other words, while there is no direct transit service between Sherwood and Beaverton/Hillsboro, it is the most important destination for transit riders who filled out the survey.

As with Wilsonville, Sherwood’s connection with Beaverton/Hillsboro will be greatly strengthened when the Wilsonville-Beaverton Commuter Rail Line is completed in 2004. Tualatin will be the nearest stop along the Commuter Rail Line to Sherwood, re-emphasizing the importance of a transit connection with Tualatin. Commuter trains will offer shorter travel times between Tualatin and Beaverton than a similar trip by car. Once at Beaverton Transit Center a Sherwood train commuter could board a variety of Tri-Met buses giving service to destinations in Beaverton or the MAX light rail for regional destinations.

Park and Ride Locations

As part of enhancing connections with nearby communities potential park and ride locations were identified. Sherwood planning staff also expressed interest in providing shuttle service to major summer events and a potential lack of parking to meet demand for these events. One recommendation is to designate existing parking lots in both Tualatin and Newberg as Park and Rides. These would enable non-Sherwood residents to access events via large, available parking lots in Tualatin and Newberg. Because most events are scheduled in the early to late evening, after the typical working day, and on weekends these lots will likely be available during event times.

Availability of Park and Ride lots

There are several large parking lots along Tualatin - Sherwood Road that can meet parking demand for summer events in Sherwood:

- Hedges Greene Shopping Center
- Kaiser Permanente
- Tualatin Corporate Center
- Tualatin Industrial Park
- ImageX.com

Potential Park and Rides in Newberg located in the northern corridor of Highway 99 West include:

- Newberg Fred Meyer
- Springbrook Plaza

Recommendations and Conclusions

Results from the Sherwood Transit Needs Assessment Survey inform the decision-making process of how to best serve Sherwood's transit needs. Survey results indicate support for additional transit service.

Intra-City Transit Service

A primary concern is serving destinations within Sherwood that are not currently served by Tri-Met. A cursory view of geography served by existing transit and where most new housing is being built indicates that most Sherwood residents have little or no immediate access to transit.

Commerce, services, and community events would be better served and more accessible if residents had improved access to transit service. Seventy-nine percent of survey respondents indicated they would use an intra city circulator for shopping and recreation. This service would also help funnel consumers into Old Town Sherwood, something that the City has expressed a desire to do. The Summer Shuttle program detailed in the Sherwood Summer Shuttle Pilot Plan report may be a first step in further analyzing demand for and feasibility of year round transit augmentation.

Residents of Sherwood have indicated desire for increased intra-city transit service, especially to the YMCA. As the number-one destination response, any future increase in transit service should include service to the YMCA. This sentiment resonates across all income levels, age groups, and residential locations in Sherwood.

Inter-City Transit Service

Linking to regional transit services accessed through other communities is another fundamental concerns. The need for quick and efficient movement of residents between Sherwood and other communities is of primary importance. Survey results indicate a desire to use transit for work and a lack of opportunities to do so. Survey data show that respondents working in Portland have adequate transit service due to two radial express bus lines. This is not true for those who work in communities closer to Sherwood, such as Tualatin, Beaverton, or Newberg. Consideration and analysis of providing transit service to these areas of employment is recommended as an option to help reduce AM and PM peak traffic congestion.

Connections to Wilsonville's SMART, Newberg's LINKS, the future Wilsonville-to-Beaverton Commuter Rail, and Tualatin's TMA Shuttle would open new commuting options for Sherwood residents. Many survey respondents said they work in or travel to Tualatin on a regular basis. A feasibility study of providing transit service along Tualatin-Sherwood Road should be explored. In addition to providing additional commuting options, transit

along this corridor will serve Sherwood residents seeking to access commerce, work and services in Tualatin.

Summer Shuttle Pilot Plan

The Summer Shuttle Pilot Plan is the second work product of the Sherwood Transit Project. It provides information about route and stop development for a fixed-route intra-city circulator.

The Project Team provided the City of Sherwood with 4 route alternatives: a preferred and an alternate route designed around youth; and a preferred and alternate route for use by the general population. Important stop, scheduling, implementation, and evaluation information is also provided.

Methodology

Analysis of Sherwood Demographics

The Project Team used Geographic Information Systems (GIS) technology, Regional Land Information System (RLIS) data, and block-level demographic data from the U.S. Census to identify locations in the city with high youth, senior, and population densities. This information is graphically depicted in Maps A-1 through A-4 in the Appendix.

Existing Transit Service

The Project Team evaluated transit use by Sherwood's citizens and identified opportunities to improve and augment existing Tri-Met service. For further discussion see the "Existing Transit Service" section of the TNAR.

Public Outreach

On April 18, 2002 three Project Team members visited Sherwood Middle School to speak with 7th grade students about their general transportation needs and impressions of the proposed shuttle. Over one hundred children in five class periods participated in the activities. Appendix B-5 includes a narrative of the visit to Sherwood Middle School and a sample of the students' work.



Summertime Activities

Based on community information printed in the Sherwood Gazette and contact with local schools and other organizations, the Project Team developed a list of summertime activities occurring in Sherwood. The Project Team used this information to determine appropriate routes and schedules for Summer Shuttle alternatives. A list of important summertime activities is included in Appendix B-6.

Youth Survey

In addition to the Transit Needs Assessment Survey discussed in the previous section, a separate youth survey was administered to seventh-grade students at Sherwood Middle School. Results from both surveys, primarily responses concerning frequency of transit use and desired transit destinations, were used to develop the Summer Shuttle Routes. For a discussion of how the Transit Needs Assessment Survey was distributed see the section titled "Transit Needs Assessment Survey Methodology."

The youth survey was administered to 108 7th grade students at Sherwood Middle School. The Project Team collected additional surveys of both types through public outreach at the YMCA Healthy Kids Day event, at Sherwood Market Center on April 13, 2002, and at the City of Sherwood's Community Services Fair on May 4, 2002. Copies of both surveys are included in Appendix B.

Youth Survey Results

Results of the Youth Summer Shuttle Survey indicate the Sherwood Ice Arena is a high-ranking destination among youth. The four most popular youth destinations were the Regal Cinemas, the Ice Arena, the YMCA, and the Sherwood Market Center. Interestingly, the Library received the lowest response. The Youth Survey also asked a separate question regarding their preference among the City's parks. Stella Olsen and Snyder Parks were the most popular.

An overwhelming number of youth respondents stated that they would use the summer shuttle if it were provided. Only 5% of respondents stated that they would never use shuttle, mainly because they live outside city limits.

Table 10: Preferred Destinations within Sherwood – Youth Survey

Destinations	Responses	Percent
Regal	135	92%
Ice Arena	113	77%
YMCA	111	76%
Market Center	107	73%
McDonalds	89	61%
Oldtown	85	58%
Plaza	84	58%
Library	47	32%
Schools	41	28%
Other	30	21%



Stella Olsen Park

Table 11: Preferred Parks Among Sherwood Youth

Parks	Responses	Percent
Stella	114	78%
Snyder	60	41%
Murdock	36	25%
Pinehurst	15	10%
Other	6	4%

Route, Stop and Scheduling Criteria

Information Provided by City of Sherwood Staff

During the initial planning stages of the Summer Shuttle project, the City of Sherwood provided the Project Team a proposed route as the starting point for development of the Summer Shuttle route.

Transit Industry Performance Standards

The Project Team used Tri-Met service standards as guidelines for the development of stop placement, stop spacing, and scheduling. As the principal local transit provider, Tri-Met's standards are regionally applied and readily transferable to existing conditions within Sherwood. A discussion of service standards and how they are applied exists in Appendix B-4.

Route and Stop Design

Field Research

Developing the proposed Summer Shuttle routes was an iterative process. After identifying a preliminary route based on City staff recommendations and demographic and survey analyses, the Project Team drove the proposed route and identified opportunities for further refinement. Route evaluation considerations included visual examination of curb space, existing Tri-Met stops, sidewalks, and intersections. The driving tours also allowed the Team to view major attractions within Sherwood and to become familiar with the layout of the city.

Stop Design

The Project Team inventoried conditions at proposed Summer Shuttle stops and considered the following characteristics:

- Safety considerations such as traffic volume, presence or absence of sidewalks, and overhead lighting
- Presence of curbside planting strip (potentially complicating loading)
- Curb opportunities for the shuttle to pull clear of traffic
- Proximate housing density
- Attractions served
- Street width
- Signage opportunities to indicate shuttle stops
- Existence and location of nearby Tri-Met stops

In designing the Summer Shuttle routes, the Project Team used the industry standard of ¼ mile buffers around proposed stops. The ¼-mile rule-of-thumb is the maximum distance a passenger will walk to access transit. Maps depicting these buffers are provided in Appendix A.

Summer Shuttle Route Alternatives

For both the General-Purpose and Youth and Recreation routes, the Project Team developed a preferred and alternate route. Each route alternative is described below. All routes are designed to serve the many summertime events occurring throughout Sherwood. Schedules are anchored around key activities and events including:

- Summer School sessions at Archer Glen Elementary and Sherwood High School
- Weekday lunches at the Sherwood Senior Center
- Coordination with existing Tri-Met service
- Evening activities at Regal Cinemas and the Sherwood Ice Arena

Table 12 summarizes the alternatives according to the number of stops, schedule times, and frequency of service. A stop inventory matrix comparing stops from all routes is provided as Appendix C-1. This matrix is supplemented with stop analysis photographs, included as Appendices C-2.1 through C-2.19.

Schedules for the General-Purpose and Youth and Recreation preferred routes are provided in Appendix C-3.

Table 12: Comparison of Proposed Summer Shuttle Routes

Route	Number of Stops	Start/Stop Time	Service Frequency
Youth Route Preferred Alternative	17	7:39am/9:54pm	45 minutes
Youth Alternate Route	17	9:54am/5:24pm	45 minutes
General-Purpose Preferred Route	17	9:33am/9:33pm	45 minutes
General-Purpose Alternate Route	18	6:30am/6:30pm	60 minutes

Summer Shuttle Route Alternatives

General-Purpose Preferred Route

Purpose

The General-Purpose Preferred Route is designed to provide shuttle riders access to a greater range of destinations and activities than the Youth and Recreation Route. It is designed to serve a variety of potential users, including commuters, youth, the elderly, shoppers, and users of Sherwood's park and recreational opportunities. The General-Purpose Preferred Route serves the top destinations identified in the Transit Needs Assessment Survey. Additionally, the General-Purpose Preferred Route provides several connections to Tri-Met buses.

Description

The General-Purpose Preferred Route and stops are depicted in Map 5. The route runs clockwise, departing Old Town and collecting passengers in residential areas before proceeding to the YMCA, the Ice Arena, and Sherwood's retail district along Highway 99W. The General-Purpose Preferred Route differs from the Youth and Recreation Route in that a stop is placed on Mandel Drive to provide access to this relatively high-density area. To compensate for adding an additional residential stop, the recreation stop at Snyder Park was removed.

The General-Purpose Preferred Route runs from 9:30a.m. to 9:30 p.m., stops at 17 locations, and has a service time of 45 minutes.

General-Purpose Alternate Route

Purpose

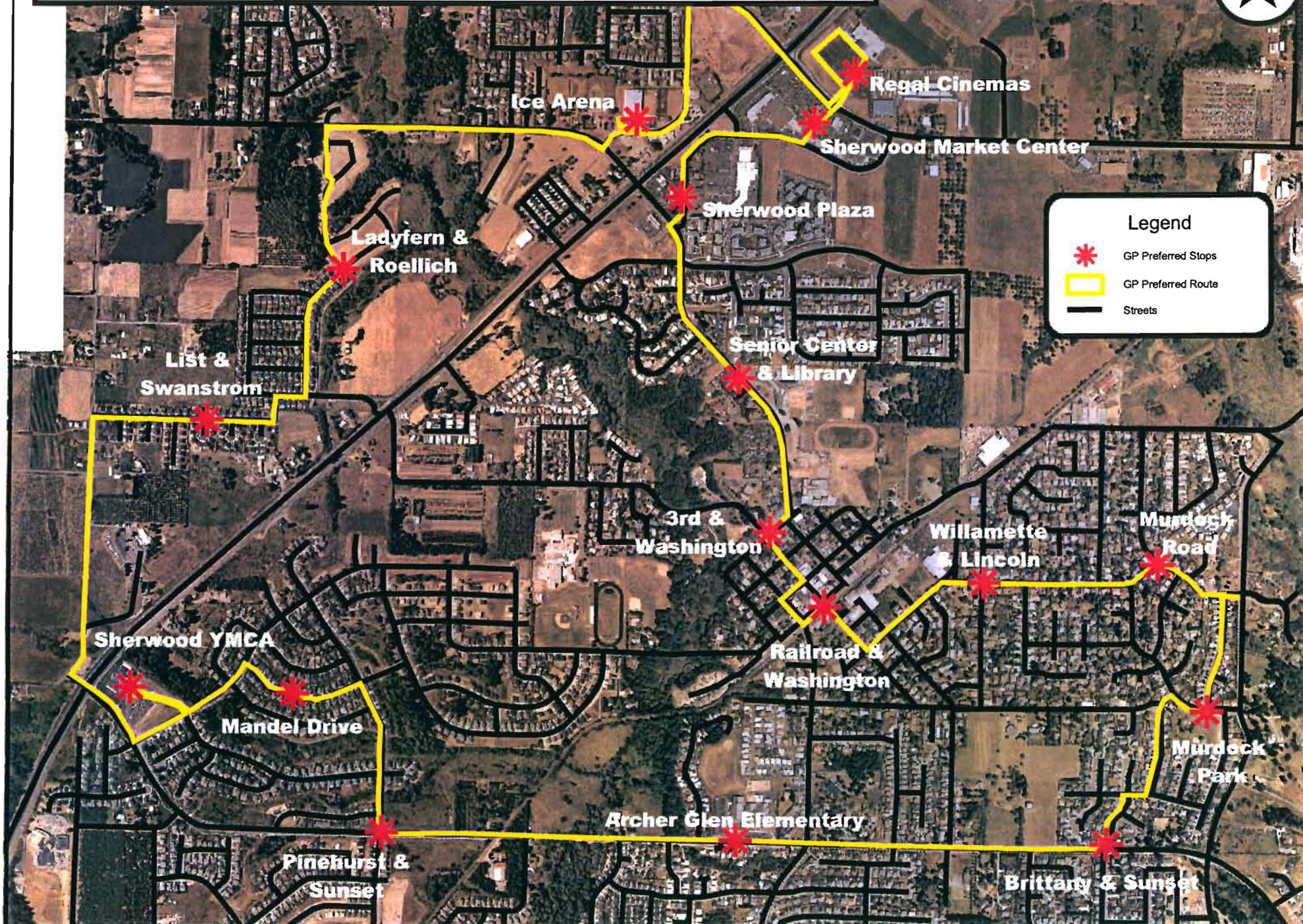
The General-Purpose Alternate Route serves all destinations on the Preferred Route and includes an extension to an employment center along Tualatin-Sherwood Road. This area has a high concentration of employment but is not currently served by existing transit.

Description

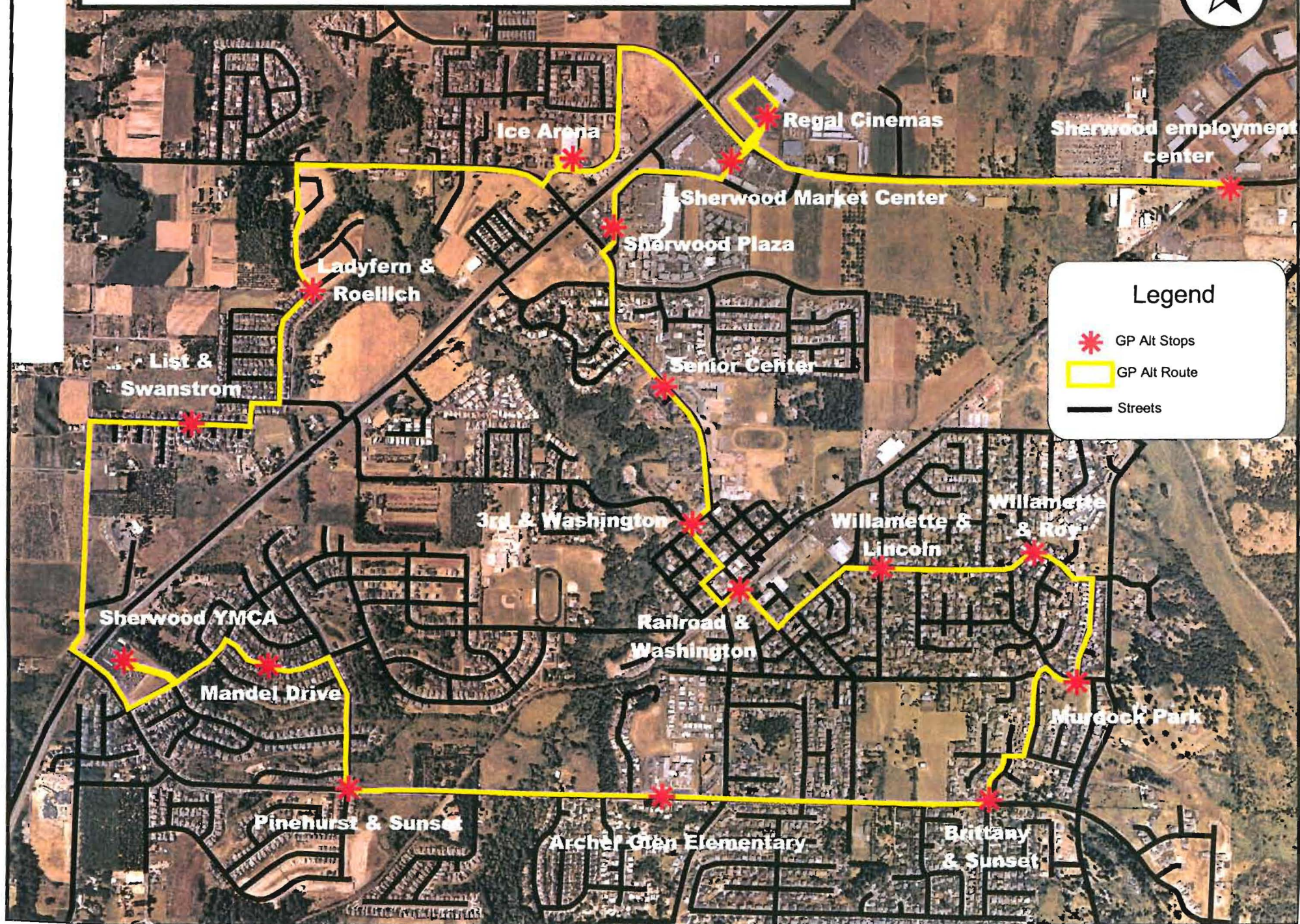
The General-Purpose Alternate Route and stops are depicted in Map 3. The General-Purpose Alternate Route runs from 11:00 a.m. to 6:30 p.m., serves 18 stops, and has a 60-minute service time. This route follows the same path as the Preferred Route, with the exception of an extension to the employment center via Tualatin-Sherwood Road. Oregon Street was the preferred connection to the employment center, but construction-related delay and closure through Summer 2002 makes this option impossible. If this shuttle plan is implemented in for the summer of 2003 or later, it may be advisable to reconsider the routing in the General Purpose Alternative to use Oregon Street.

The employment center extension will likely experience moderate ridership during morning and evening peak commuting times, but very low ridership during other times of the day. This coupled with few pedestrian amenities and ample parking in the area increases the

General-Purpose Preferred Route



General-Purpose Alternate Route



likelihood that people will drive instead of using the shuttle option. Because expected ridership to the employment center is not high, the Preferred General-Purpose Route becomes more attractive than this option.

Youth and Recreation Preferred Route

Purpose

The design of the Youth and Recreation Preferred Route is oriented around the transportation needs and of Sherwood's children, lending special attention to their preferred destinations and activities. Recreational destinations such as local parks, the YMCA, and the Sherwood Ice Arena are important components of Youth and Recreation Route design.

Description

The Youth and Recreation Preferred Route runs clockwise through Sherwood, beginning in Old Town at Railroad and Washington Streets (Map 5). The route serves areas with high concentrations of youth along Willamette Street, near Archer Glen Elementary, and near the YMCA. This shuttle transports passengers to favorite youth destinations such as Snyder Park, Sherwood YMCA, the Sherwood Ice Arena, Regal Cinemas, and Sherwood Market Center.

In order to meet the varying and specific needs of Sherwood's youth, the Youth and Recreation Preferred Route operates on a full-day schedule beginning at 7:40 a.m. and ending at 10:00 p.m. The full-day schedule accommodates youth who attend summer school at 8:00 a.m. as well as those who attend late night events at the Ice Arena and Regal Cinemas. Completion of the 17-stop route takes 45 minutes.

Youth and Recreation Alternate Route

The Youth and Recreation Alternate Route follows the same course as the Preferred Route, but has an 8-hour schedule. The schedule runs from 10:00 a.m. to 6:00 p.m. and does not accommodate evening events at the Ice Arena or Regal Cinemas, but does allow the shuttle to pick up second-session summer school students (beginning at 10:15 a.m.) and is a convenient schedule for daytime events.

Youth and Recreation Route



Ridership Estimates

Ridership is an important piece of information for the City of Sherwood. The more riders that use the shuttle, the more easily the shuttle can be justified. Any number of circumstances including scheduling, budget, and service hours could reduce or increase the number of people riding the shuttle below or beyond the range estimated here.

Data Used

Block group data for the 2000 Census was used to estimate ridership for Sherwood's summer shuttle program. There are 185 Census blocks in Sherwood of various size and shape. The largest Census Block has over 800 people. Total population in all of Sherwood's blocks within the city boundary is 12,001 persons. Although there are many more people living near Sherwood, this figure most closely represents the population that would be served by the shuttle routes in this document.

Assumptions

Ridership estimates are always based on assumptions. The estimates are meant to give a reasonable range within which ridership is likely to fall, not an exact number. The ridership numbers below represent a high and low estimate of the number of people who will use the shuttle. The figures are expressed as number of trips, not number of people.

In order to get a handle on the number of people who will use the summer shuttle in Sherwood, comparison to other cities in the Portland Metropolitan area that operate their own shuttle systems is necessary. Among them are Molalla, Astoria, Albany, Lincoln County, Tillamook and Woodburn. All of these cities provide an intra-city loop service, as well as, most having radial service to downtown Portland. If Sherwood were to implement summer shuttle service, this new transit provision, coupled with existing Tri-Met service, would be similar to the previously mentioned cities. Although Sherwood would not provide radial service to Portland, radial service would still be provided by Tri-Met and would complement the proposed Summer Shuttle service. Therefore, Molalla, Astoria, Tillamook and Woodburn are useful for predicting ridership in Sherwood.

Methods

A high and low ridership estimate was done to provide a range. The City of Woodburn, Oregon was used for the low ridership estimate. Woodburn has 20,100 people according to the 2000 US Census. Woodburn has easy access to I-5, unlike Sherwood, but has a similar drive time to downtown Portland. Woodburn has a loop shuttle transporting residents to locations solely within the City and another shuttle that takes riders to areas outside of the City. Woodburn's loop shuttle, from which ridership was extrapolated, charges a fee of \$0.75 per rider. Ridership comparisons to Sherwood were done by taking the proportion of rides in a one-month period on the loop shuttle in Woodburn and comparing it to the service population (population residing in the service area of the route). On a monthly basis the

Ridership Estimates

number of rides taken on the loop circulator shuttle in Woodburn is about 2,750. The proportion of rides to the service population (2,750/20,100) is 13.7%.

The high estimate of the number of people who will use the shuttle was based on the City of Astoria, Oregon. Transit service in Astoria is provided by the Sunset Empire Transit District. In contrast to Woodburn, Astoria has a better-developed transit system with a loop shuttle and several radial routes. Ridership on Astoria's transit system is high because it provides access to a variety of destinations in nearby towns, within Astoria itself and to downtown Portland. The Sunset Empire Transit District uses a structured fare system in which adults pay \$0.75, seniors pay \$0.50, and children ride free. Monthly passes are also available which gives customers a discount and promotes greater use of the shuttle. For these reasons Astoria's transit system sets the upper bound estimate for Sherwood's ridership. On a monthly basis, the average number of rides taken on the loop shuttle in Astoria is about 5,400. The proportion of rides to the service population (5,400/9800) is 55.1%.

Estimates

Applying the proportions experienced in Woodburn and Astoria to the population that will be served by the proposed shuttle routes in Sherwood gives us the results in Table X below. The low estimate (13.7% * 12,001 persons) yields about 80 rides per day on any of the proposed shuttle routes in this document. The high estimate (55.1% * 12,001 persons) results in 331 rides per day on any of the proposed routes. The low estimate is more realistic for Sherwood's Summer Shuttle in its infancy with a simple loop circulator. The high estimate based on Astoria represents the situation Sherwood might be in after 5 to 10 years after start-up if it provided radial service to surrounding areas and residents were familiar with the system.

Table 13 Ridership Estimates

	Low Estimate	High Estimate
Daily	82	331
Weekly	411	1,653
Monthly	1,644	6,613
Yearly	19,728	79,356

In small urban areas (50,000 people or less) around the US, 21% of transit riders are under 18 years of age, 61% are between 19 and 64 years of age and 18% are 65 years of age or older on average (APTA, 1992). Applying these averages to estimated Sherwood ridership, the rough estimate by age group can be seen in Table Xx below. The estimates are daily number of rides by age group.

Table 14 Daily Rides By Age Group

Age	Estimated Riders Per Day (Low)	Estimated Riders Per Day (High)
18 and Under	17	70
19-64	50	201
65 and Over	15	60
Total	82	331

Ridership on Sherwood's Summer Shuttle is likely to start near the bottom of the range specified above. As residents become aware of the service and can learn to count on frequent and reliable service, ridership would be expected to increase. Should Sherwood someday choose to provide some radial routes to nearby areas, ridership might resemble figures at the high end of the range.

Implementation

This section of the Summer Shuttle plan is a summary of important considerations not to be overlooked during the development and implementation of the Summer Shuttle Program. The section includes information on contracting service, scheduling, signage and promotion, and program evaluation.

Contracting Transit Service

Contracting out for transit service is a controversial issue in public transit. Proponents argue that contracting always saves money in comparison with public operation, while critics respond that cost savings through contracting are overstated and come almost exclusively at the expense of labor. While most small urban transit in the Portland Metropolitan area is contracted out, and the City of Sherwood is unlikely to start its own transit service agency for the Summer Shuttle, it is useful to understand some of the major benefits and problems associated with contracting out transit service.

Advantages of Contracting

There are several advantages a public official or transportation executive can gain by contracting transit service:

- Expertise of field specialists in areas such as fleet maintenance
- Lower costs, in that the contracted firm has economies of scale as well as expertise in operations.
- Marketplace benchmarks against which the efficiency of other operations can be measured.
- The hiring agency sets performance standards and holds contractors accountable.
- The burdens of detail management are shifted from the hiring agency to the contracted firm.
- The hiring agency is free to focus on goals and policy options to achieve them rather than the nagging detail of operations.

Disadvantages of Contracting

In addition to the labor issue, there are several arguments that comprise the primary focus of anti-contracting literature. While not meant to be exhaustive, this section will give the reader a basic understanding of arguments that do not support contracting out transit service. Four of the primary arguments are

- Private operation often hurts transit dependant riders
- Management of contracts is resource exhaustive and oversight-intensive
- Open market transit provision leads 'skimming the cream'
- De-regulated transit causes disjointed service resulting in reduced ridership.

List of Local Contractors

Several local transit-contracting companies were interviewed for information pertaining to contracting for Sherwood's Summer Shuttle. Cost figures vary depending on the level of service provided, the length of the route, the number of vehicles employed, the number of

service hours provided, and several other factors. No concrete numbers can be made available until the City of Sherwood sends a Request for Proposals (RFP). See Appendix D for a list of local contractor information.

Shuttle contracting requires significant lead time. The City of Sherwood should not underestimate how long it will take to start up a program for a June start date.

Summer Shuttle Signage

The Project Team attempted to identify opportunities for clearly marked signage at shuttle stops, as readily identifiable stops and signage improve passenger loading and unloading and increase the speed and efficiency of shuttle operation. Because the Summer Shuttle is a seasonal operation, there are special considerations the City should consider. The means of communicating shuttle stop locations to the public, such as A-boards, placards, pole signs, etc., must be distinct and eye-catching. They should also be designed such that Sherwood residents unfamiliar with the Summer Shuttle route will immediately recognize the location of a stop. Weather and tamper-proofing signs may be appropriate for increased longevity at stop locations. Additionally, it may be useful to affix schedules to the Summer Shuttle signage.

Of the 19 total stops comprising the proposed Summer Shuttle routes, 4 share stop locations with Tri-Met buses. Tri-Met cooperates with other transit jurisdictions to share signage and often accommodates stickers or other labels that indicate a shared stop. Diana Anderson is the contact person at Tri-Met for inquiries concerning stop sharing. Her telephone number is (503) 962-4892.

Summer Shuttle Promotion

Effective promotion, including widely disseminated information about stop locations, hours of operation, and scheduling, will be an important determinant of shuttle ridership. Ken Zatarain, Director of Transportation Planning for Tri-Met, has expressed an interest in discussing cooperation and cost sharing of Summer Shuttle promotion with the City of Sherwood. Mr. Zatarain explained that it would be mutually beneficial for Tri-Met and the City of Sherwood to promote the Summer Shuttle in conjunction with Tri-Met service improvements implemented in September, 2001. Mr. Zatarain also explained that Tri-Met has much experience with youth-specific promotion. His telephone number is (503) 962-4970, and his e-mail address is zataraik@tri-met.org.

Victoria Brown, previously with the Tualatin Transportation Management Association and Westside Transit Alliance is a good contact for inquiries about how the City of Tualatin promoted its shuttle. She can be phoned at (503) 617-4844, or e-mailed at wtamail@teleport.com.

Chris Stevens, coordinator of Sherwood Public School's Summer School program, has expressed an interest in helping encourage use of the Summer Shuttle among Sherwood's youth. He explained that his ability to assist with this task is limited, but that he would help

Implementation

distribute any promotional materials developed by the City. His telephone number is (503) 625-8100.

Safety

Safety is an important consideration in the implementation of a transit system. There are several factors influencing both perceived and actual security. Successful agencies estimate the actual level of safety, act to improve safety, and engage the public in education programs that dispel unfounded concerns but also provide the public with tips that will make using transit a safer option (TCRP # 54, 1999).

The two preferred alternatives are, in various degrees, geared to youth. The survey administered and the class sessions at Sherwood Middle School provided strong evidence that they would use transit if an intra-city circulator were available. An important consideration, however, is the fact that actual youth ridership might be to a large degree determined by the parents' sense of safety.

According to a report by the Surface Transportation Policy Project ("High Mileage Moms", STPP web page), parents –and especially mothers- in the suburbs are spending more of their time in additional trips chauffeuring their kids to several destinations, in great part due to a lack of safe transportation alternatives and the lengthy distances between destinations in largely decentralized suburbia.

This has important implications if the City is to implement a shuttle. A successful program will convince parents that service will be above a minimum safety threshold. Further outreach to parents would be a good start in evaluating parents' perception of safety and security and providing important feedback that can be translated into targeted safety practices. This outreach would also help dispel misconceptions and promote the program.

An example of how the City can reach out to parents and youth is to look at what Wilsonville's SMART program has done. The program included education to youth on how to ride the bus, actual field trips, and interaction with parents. SMART management took extra care selecting and training drivers (heavily emphasizing customer service skills), and making stops safe. The result was an important patronage by Wilsonville's youth, who make 14 % of all riders (Thompson 2002; City of Wilsonville web site).

Safety and Security Checklist

The Transit Cooperative Research Program (1999) came up with a basic "Safety and Security Checklist." They include:

- A risk management program in cooperation with the system's insurer(s).
- Adequate exterior lighting at all facilities (bus stops, transfer facilities, office, maintenance garage).
- Well-maintained vehicles (regular preventive maintenance schedule).
- Clean vehicles and facilities.
- Well-trained drivers (CPR, defensive driving, passengers with special needs, etc.).

- Policies and employee training in proper procedures for: a) communications between drivers and the base station, and the transit system and law enforcement personnel/emergency personnel; b) emergency/incident actions and inclement weather operations; c) blood-borne pathogens and bodily fluids clean-up; d) accident investigation procedures.
- Drug and alcohol awareness training and testing.
- Policies and driver training on proper passenger handling and vehicle operations procedures.
- Policies and procedures for cash handling.
- Security personnel/community policing.
- Bus stop location standards for vehicle and pedestrian safety.

UPA LIBRARY

Performance Evaluation

An essential component of implementing the Summer Shuttle program is to devise a system to evaluate its performance. Passenger counts, on-board surveys, and direct field observation are useful methods to collect information that can be used to evaluate transit service.

Passenger Counts

Passenger counts are an obvious indicator of whether a shuttle service is needed and being used. Because the Summer Shuttle is a free service, fare box revenues cannot be used to obtain passenger counts. It is likely that the contractor will have a counting mechanism in place, but if a record of ridership numbers is desired, it is recommended that this be discussed with potential contractors prior to signing an agreement.

On-Board Surveys

On-board passenger surveys are another useful way to collect data on ridership trends and customer satisfaction. Two on-board surveys commonly employed by transit providers are origin-destination (O-D) surveys and customer satisfaction surveys. Origin-destination surveys are designed to provide information about how people use the transit service. In addition to the origin and destination of trips, O-D surveys ask respondents about trip purpose, time of travel, and frequency of transit use. Customer satisfaction surveys are useful in determining whether a service meets the needs of its passengers, and they can help the operating agency identify areas for improvement. Sample O-D and customer satisfaction surveys are included in Appendix G.

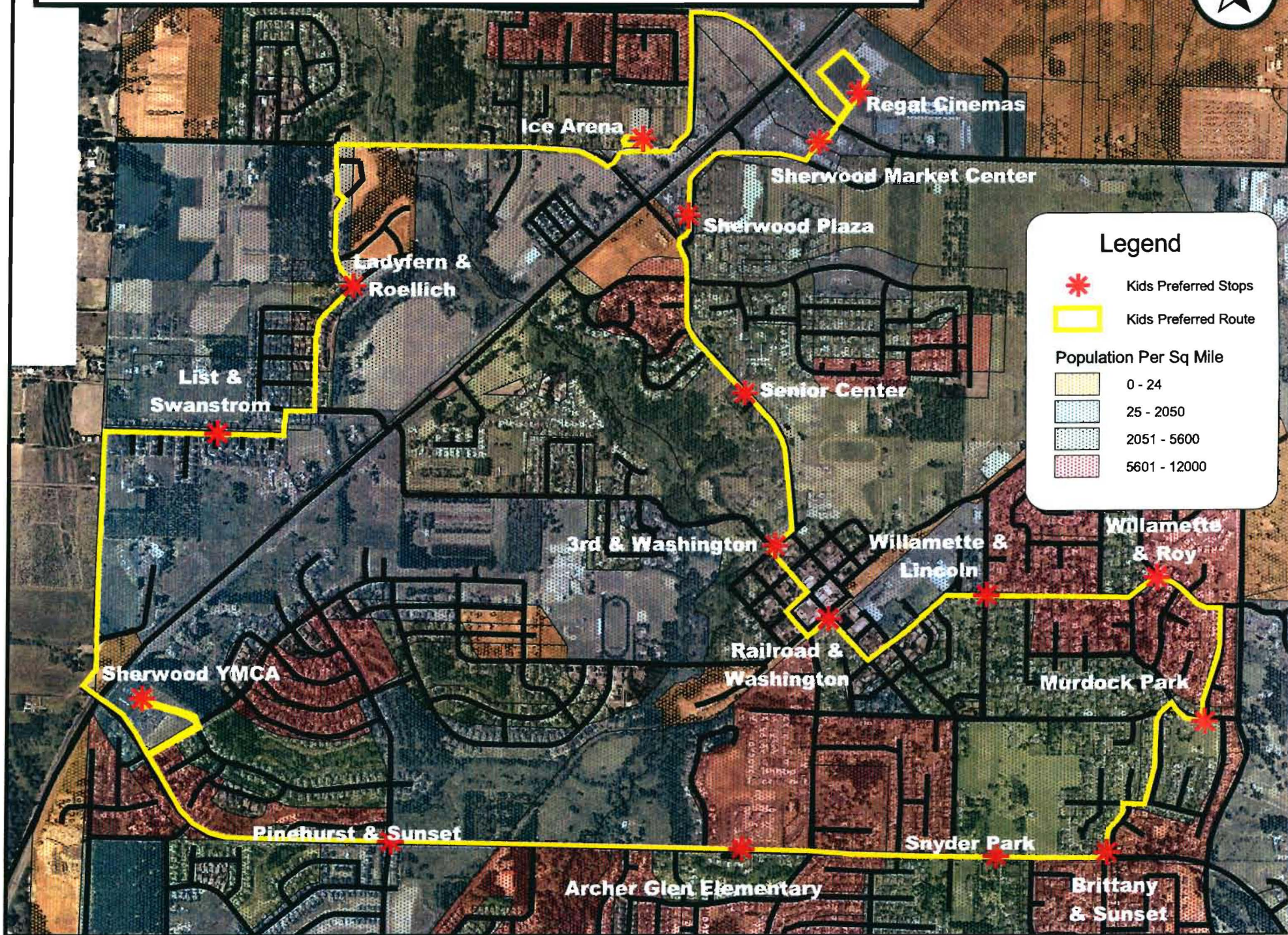
Field Observation

Direct field observation may be a useful and appropriate evaluation tool for the Sherwood Summer Shuttle. While on-board surveys can require significant investments in time, labor, and other resources, field observation is a relatively inexpensive and less time-intensive method of information collection. The process is simply to send one or two staff members into the field to observe the shuttle's operation. In a few hours, staff can observe and record information including the number of passengers using the service, various measurements of reliability, vehicle comfort and ease of use, and direct customer feedback. Observers may also identify problems or areas for improvement in the service. Direct field observation may be especially suitable for a small transit operation like the Sherwood Summer Shuttle.

APPENDICES

APPENDIX A: MAPS

Youth and Recreation Preferred Route and Population Density

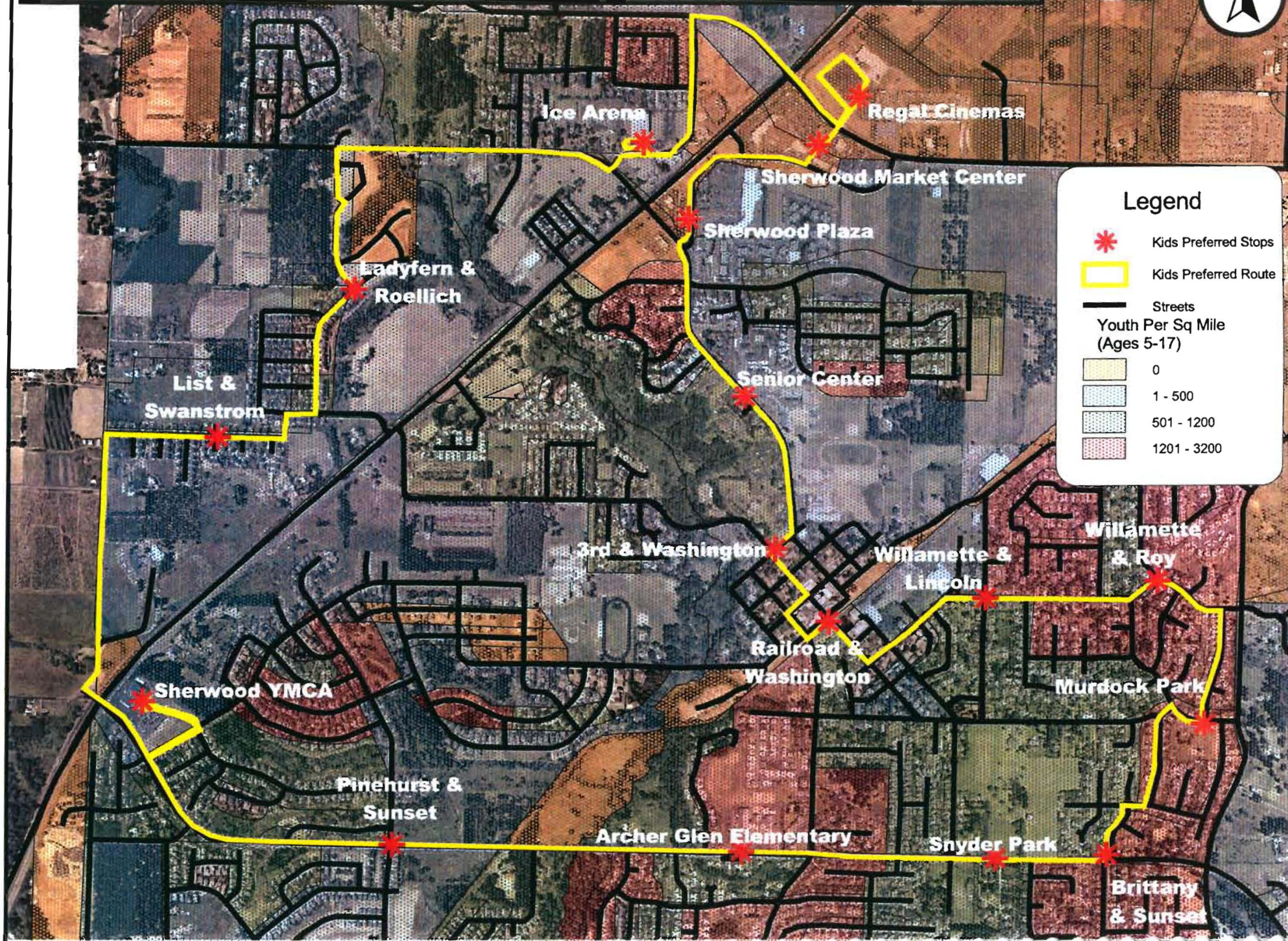


Youth and Recreation Preferred Route and Density of Children Ages 5-17

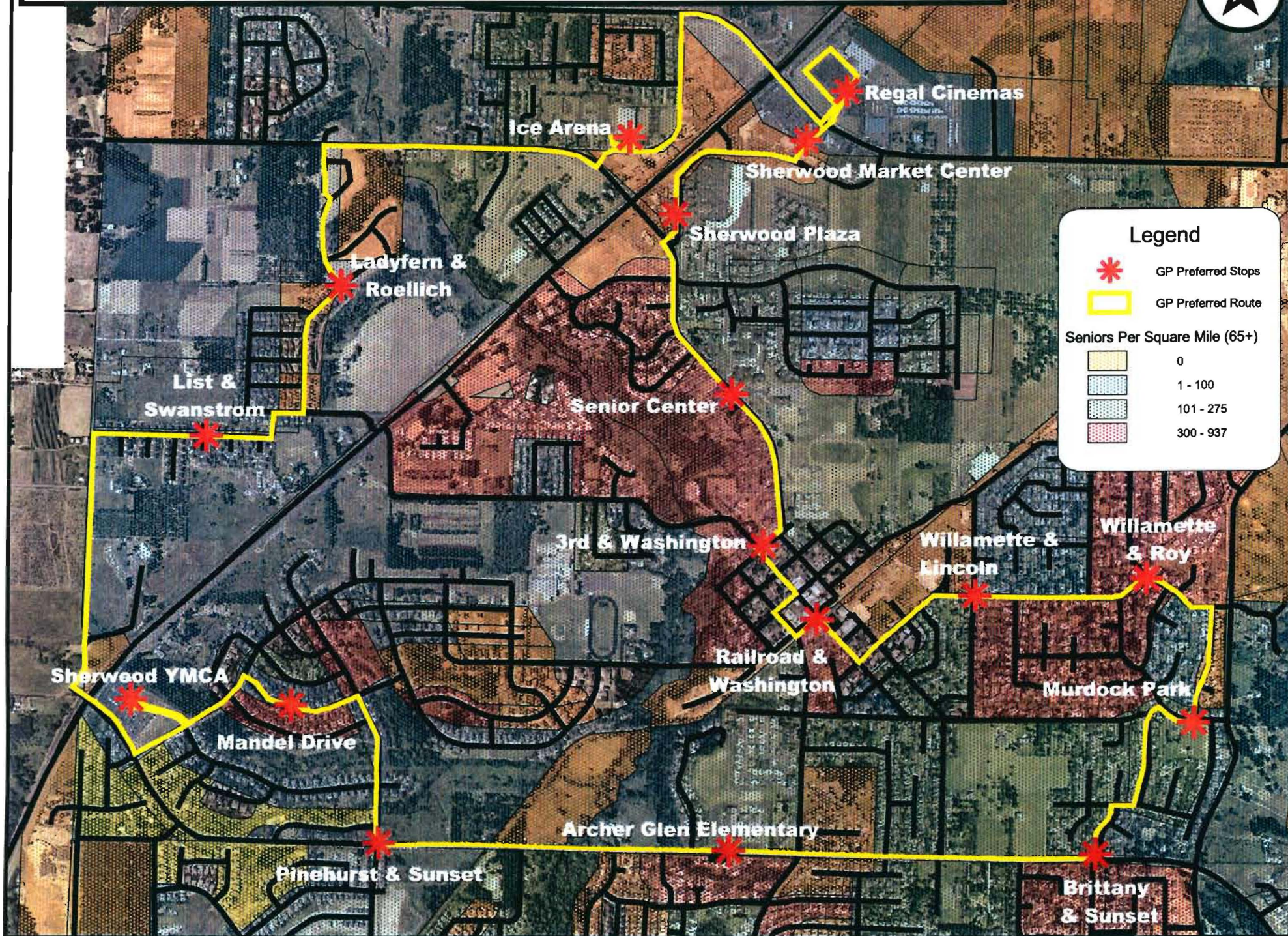


Legend

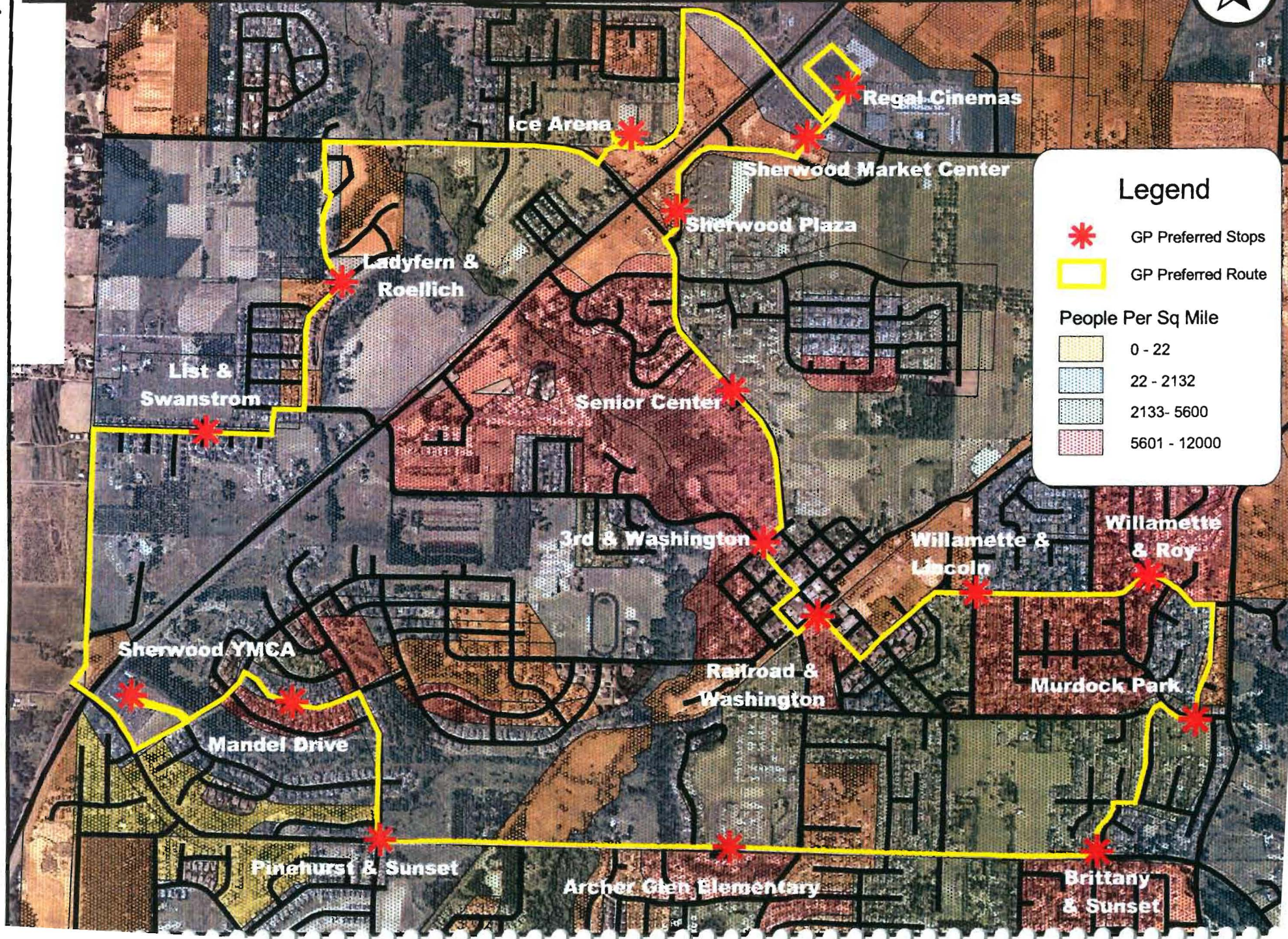
- Kids Preferred Stops
- Kids Preferred Route
- Streets
- Youth Per Sq Mile (Ages 5-17)**
 - 0
 - 1 - 500
 - 501 - 1200
 - 1201 - 3200



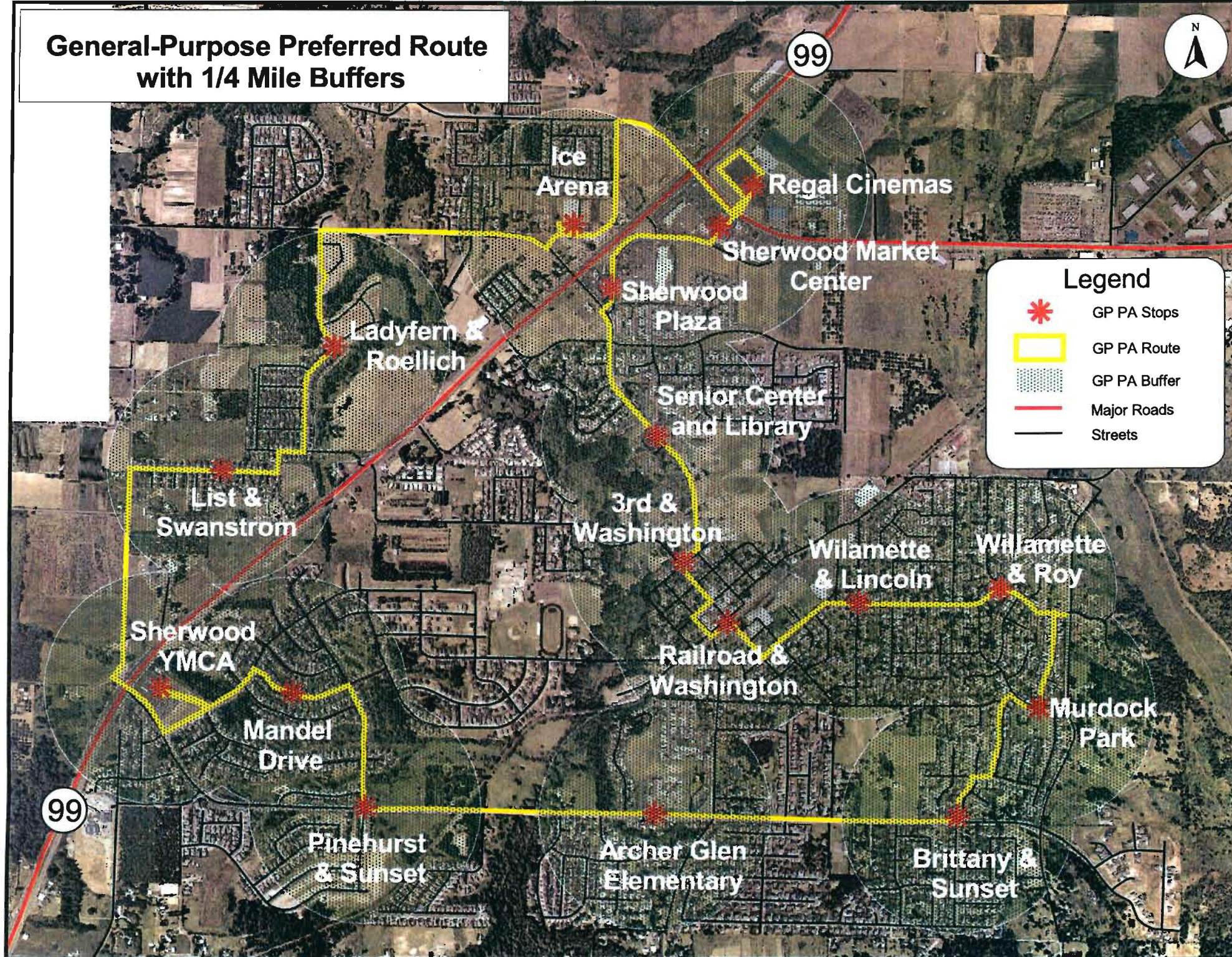
General-Purpose Preferred Route and Population Density of Seniors



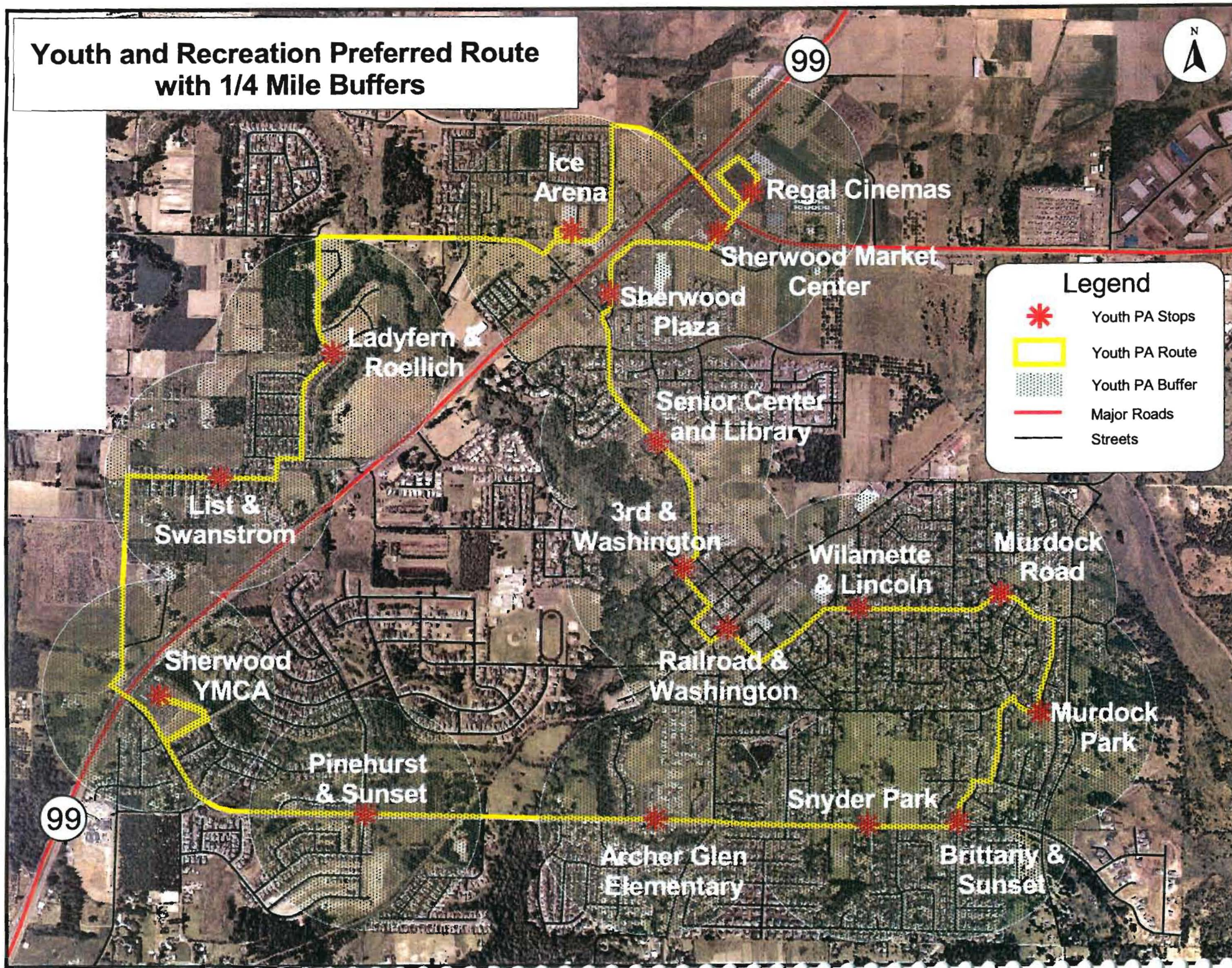
General-Purpose Preferred Route and Population Density



General-Purpose Preferred Route with 1/4 Mile Buffers



Youth and Recreation Preferred Route with 1/4 Mile Buffers



APPENDIX B: METHODOLOGY

Appendix B-1: Sherwood Profile Methodology

Demographic data was obtained from the U.S 2000 Census, PSU Population Research Center, the Oregonian, Metro's *2017 Regional Forecast and TAZ Allocation*, Metro's Regional Land Inventory Survey, and the City of Sherwood. The methodology used was based on four major considerations:

Estimates of both population and employment growth in the future. The higher the rate of growth in these two variables, the more viable transit will become and the more needed it will be absent some major (and largely unplanned) transportation infrastructure improvements (Cervero, 1994; TCRP Report #55, 1999).

Traditional transit dependent populations. Transit has in the last decades more heavily relied on the so-called "transit dependent" populations. They are composed of the elderly, low-income groups, the disabled, those too young to drive, ethnic minorities, and those without a car (Garrett and Taylor, 1999; Gray and Hoel, 1992).

Population size and density. Transit functions more efficiently and effectively in areas or higher density and population (Cervero, 1994; Meyer and Miller, 2001; TCRP Practice # 14, 1995).

Geographical and spatial location of Sherwood with respect to the region. Suburban areas at the periphery of major urban areas generally rely more heavily on private motorized transportation for the great majority of trips as these new areas where development in the era of the automobile and tend to be of low densities (ibid.; Newman and Kenworthy, 1999).

Appendix B-2: Survey Instruments

Sherwood Transit Survey

The City of Sherwood is conducting a brief survey of transit usage and needs. Please complete both sides of the survey and either mail or drop it in one of the conveniently located drop boxes at City Hall, the Library, the Senior Center, or the YMCA. Thank you.

1. What is your age? (Check one) ☐ Under 13 ☐ 13-17 ☐ 18-25 ☐ 26-34 ☐ 35-65 ☐ Over 65

2. Gender (Check one) ☐ Male ☐ Female

3. What part of Sherwood do you live in? (Check one)

- | | |
|---|---|
| <input type="checkbox"/> West of Highway 99 | <input type="checkbox"/> South of railroad tracks. |
| <input type="checkbox"/> Between railroad tracks and Highway 99 | <input type="checkbox"/> Outside Sherwood City limits |

4. How would you classify your yearly household income? (Check one)

- | | | |
|--|--|--|
| <input type="checkbox"/> Under \$15,000 | <input type="checkbox"/> \$30,001 - \$45,000 | <input type="checkbox"/> \$60,001 - \$75,000 |
| <input type="checkbox"/> \$15,001 - \$30,000 | <input type="checkbox"/> \$45,001 - \$60,000 | <input type="checkbox"/> Above \$75,001 |

5. How many vehicles does your household have? (Specify number) _____

6. How many licensed drivers are there in your household? (Specify number) _____

7. Indicate where you work at least part time (Circle all that apply).

Sherwood Wilsonville Tualatin/Tigard Portland Beaverton Salem Other (please specify)
 Area Area Area Area Area Area

8. If you use EXISTING TRI-MET bus service, which route(s) do you use, where do you go, and how often? (Check the boxes)

Tri-Met Bus Route	Destination											
	Sherwood				Portland				Tualatin/Tigard Area			
	More than 1 trip/day	1 trip/day	More than 1 trip/week	More than 1 trip/month	More than 1 trip/day	1 trip/day	More than 1 trip/week	More than 1 trip/month	More than 1 trip/day	1 trip/day	More than 1 trip/week	More than 1 trip/month
#12												
#94X												
#95X												

9. If you transfer from one of these buses, what is your final destination? (Check one)

- ☐ Wilsonville
☐ Beaverton/Hillsboro area
☐ Salem area
☐ Other (please specify) _____

10. How satisfied are you with existing Tri-Met service? (Check one)

- | | |
|---|--|
| <input type="checkbox"/> Very satisfied | <input type="checkbox"/> Somewhat dissatisfied |
| <input type="checkbox"/> Somewhat satisfied | <input type="checkbox"/> Very dissatisfied |
| <input type="checkbox"/> Neither satisfied nor dissatisfied | |

OVER

If the City of Sherwood offered transit service that served destinations only within Sherwood:

11. Where would you like the bus to go? (Mark all that apply)

- ☐ Senior Center
- ☐ Sherwood Public Library
- ☐ The YMCA
- ☐ Old Town Sherwood
- ☐ Schools (please specify) _____

- ☐ Sherwood Market Center
- ☐ The Regal Cinemas
- ☐ The Sherwood Business Park
- ☐ Sherwood Plaza Shopping Area
- ☐ Other (please specify) _____

12. How often would you use this service? (Check one)

- ☐ Once per day
- ☐ Several times per day
- ☐ More than once per week

- ☐ More than twice per month
- ☐ Never (please skip to question 15)
- ☐ Other (please specify) _____

13. What would you use this service for? (Mark all that apply)

- ☐ Work
- ☐ Shopping
- ☐ School

- ☐ Dining/bar
- ☐ Personal appointment

- ☐ Visiting friends/family
- ☐ Recreation/entertainment

14. On what days would you use this service? (Mark all that apply)

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday

- ☐ Thursday
- ☐ Friday

- ☐ Saturday
- ☐ Sunday

15. What can be done to improve transit service in Sherwood?

-----Fold here and seal below-----

THANK YOU FOR PROVIDING US THIS VALUABLE INFORMATION.

IF YOU HAVE ANY QUESTIONS OR COMMENTS please contact us
via e-mail at sherwoodsuryey@hotmail.com.

Return Address:

Place
Stamp
Here

City of Sherwood
City Hall
20 NW Washington St.
Sherwood, OR 97140

Tape
Here

Youth Summer Shuttle Survey

1. Which places will you go to this summer? (Mark all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Sherwood Public Library | <input type="checkbox"/> The Regal Cinemas |
| <input type="checkbox"/> The YMCA | <input type="checkbox"/> McDonald's |
| <input type="checkbox"/> Old Town Sherwood | <input type="checkbox"/> Sherwood Plaza Shopping Area
(Safeway) |
| <input type="checkbox"/> Schools (please specify) _____ | <input type="checkbox"/> Ice Arena |
| <input type="checkbox"/> Sherwood Market Center
(Albertson's, Blockbusters) | <input type="checkbox"/> Other (please specify) _____ |

2. Which parks will you go to this summer? (Mark all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Snyder Park | <input type="checkbox"/> Stella Olsen Park |
| <input type="checkbox"/> Murdock Park | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Pinehurst Park | |

3. If the City provided a free shuttle bus this summer, how often would you take it to these places? (Check one)

- | | |
|--|---|
| <input type="checkbox"/> Once per day | <input type="checkbox"/> More than twice per month |
| <input type="checkbox"/> Several times per day | <input type="checkbox"/> Never |
| <input type="checkbox"/> More than once per week | <input type="checkbox"/> Other (please specify) _____ |

4. If the City provided you this summer with a free shuttle bus to these places, which days would you use it? (Mark all that apply)

- | | | |
|------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Monday | <input type="checkbox"/> Thursday | <input type="checkbox"/> Saturday |
| <input type="checkbox"/> Tuesday | <input type="checkbox"/> Friday | <input type="checkbox"/> Sunday |
| <input type="checkbox"/> Wednesday | | |

5. What is your age? _____

6. What is your gender? ____Male ____Female

7. Please look at the map and find the number of the square closest to where you live. What is the number? ____

Appendix B-3: Youth Summer Shuttle Survey Results

When asked how often they might use the shuttle, an overwhelming number of youth respondents stated that they would use the Summer Shuttle if provided. Only seven respondents (5%) stated they would never use the shuttle. Regarding frequency of use, 36% would use it more than once per week, 12% would use it once per day, and 23% would use the service more than once per day.

Respondents indicated they would use the shuttle all days of the week, but that Fridays and Saturdays would be the most popular days to use the shuttle.

The five destinations receiving the highest response rate were Regal Cinemas (92%), the Ice Arena (77%), the YMCA (76%), and the Sherwood Market Center (73%). Sherwood Public Library received the lowest response (32%).

Among the City's parks, Stella Olsen (78%) and Snyder (41%) were the most popular responses. Tables B-1 through B-3 summarize the Youth Survey results.

Table B-1: Youth Summer Shuttle Survey Demographics

Demographics	Responses	Percent
Average Age	13	
Male	66	45%
Female	79	55%

Table B-2: Preferred Shuttle Frequency – Youth Summer Shuttle Survey

Frequency	Responses	Percent
Once per day	17	12%
More than once per day	33	23%
More than once per week	53	36%
More than once per month	26	18%
Never	7	5%
Other	5	3%

Table B-3: Preferred Days of the Week – Youth Summer Shuttle Survey

Days of the Week	Responses	Percent
Monday	77	53%
Tuesday	69	47%
Wednesday	64	51%
Thursday	69	47%
Friday	110	75%
Saturday	109	75%
Sunday	79	54%

Appendix B-4: Stop Criteria

Distance Between Stops

Based on Tri-Met's Service Standards, "stop spacing is dictated primarily by the land uses and density of development along a route and secondarily by the characteristics of the road and sidewalk network." Tri-Met distinguishes between four different types of stops and stop requirements.

- Group 1 stops provide access to business districts, shopping centers, transfer points, hospitals, or high-density housing (over 80 units/acre). Stop spacing should be 400 to 600 feet.
- Group 2 stops provide access to contiguous, fully developed residential areas (22-80 units/acre) and medium to low-density commercial areas. Stop spacing should be 500 to 750 feet.
- Group 3 stops provide access to low density residential developments (4 to 22 units/acre). Stop spacing should be 600 to 1000 feet.
- Group 4 stops provide access to rural or isolated areas (less than 4 residences/acre). Stops should be spaced as needed, but will generally be at 750 feet apart (Tri Met Service Standards, 1990).

The proposed shuttle routes will typically cross Groups 1, 2, and 3, meaning 400 to 1000 feet should separate stops. Commercial areas will have greater stop frequency than other areas. Although this methodology applies to both the Youth and General-Purpose Routes, the Project Team discovered through interaction with Sherwood Middle School students that children are often more willing to walk further distances than adults to catch the shuttle.

Stop Placement

The Project Team also applied Tri-Met's Standards to Summer Shuttle stop placement whenever possible:

Stops on the far side of an intersection are preferred where buses can pull out of the traffic lane and maneuver to the curb. Along streets with parking, bus zones should be provided. Along streets without parking, far side stops are preferred at non-signalized intersections. Far side stops result in less traffic delay, better pedestrian and automobile site distances, and more bus maneuvering area.

Nearside stops are preferred where buses must stop in the travel lane on a street with curbside parking. This places the front door of the bus at the intersection or crosswalk. Where the bus stops in a travel lane on a street without parking, nearside stops are preferred at signalized intersections so that traffic behind the bus does not block the intersection.

Midblock stops should be avoided unless blockfaces are unusually long or unless special conditions warrant such a siting (Tri Met Service Standards, 1990).

Shuttle route alternatives in this plan occasionally take advantage of farside stops, especially on roads that do not have heavy traffic. Implementing farside stops makes the shuttle route more efficient and timely. Few stops on any of the proposed routes are on signalized intersections, and midblock stops are used in some residential areas.

Appendix B-5: Sherwood Youth Outreach

Because the City of Sherwood is interested in exploring a shuttle program targeted primarily toward children, the Project Team attended five class sessions at Sherwood Middle School to interact with local youth and discover whether such a service would be welcomed and needed. Youth outreach was also done at the YMCA Children's Health Day event. Suggestions and ideas provided by Sherwood youth were incorporated into the summer shuttle program design.

A majority of students showed overwhelming support for the shuttle, citing that the shuttle would give them greater independence and convenience, and allow them to travel to more distant destinations in less time.

After discussing the City's tentative plan for a Summer Shuttle, the students performed an exercise using a map of Sherwood. The map displayed Sherwood's street network and highlighted major attractions in the area. Students worked in groups to come up with a route, stops, and direction of the shuttle. The Project Team limited the number of stops to twelve, encouraging students to think strategically in their stop placement decisions.



A key finding of this activity was that children are willing to walk longer distances to catch the shuttle than was originally anticipated. They also indicated that they were willing to wait up to 30 minutes in the absence of a schedule. Most groups were surprisingly reserved about placing more than two stops at the shopping centers on either side of Highway 99. They preferred to walk the unattractive landscape and cross the busy highway to a stop. All groups identified the YMCA as an important destination, as well as the shopping centers and Snyder and Stella Olsen parks. The Library and their school, however, were not at the top of the student's list of places to visit this summer.

When asked to estimate how often they would use the service, 35% of youth respondents stated they would use it more than once per week, 11% would use it once per day and 22% would use the service more than once per day. These responses indicate that youth will use this service if provided.

The most contentious question had to do with whether they were willing to share the bus with other groups, namely, adults. Their immediate response was no. The main concern was that

they would not feel safe in the presence of certain adults. The great majority stated that they would be willing to share their bus with the handicapped, the elderly, and parents of small children.

Appendix B-6: Schedule Of Events

The Project Team used the following program information to determine appropriate routes and schedules for Summer Shuttle alternatives. Events are listed for both the Youth and Recreation and General-Purpose routes. Scheduling information is tentative, subject to change, and based on telephone conversations and source materials provided by the respective agencies and City of Sherwood staff.

Youth and Recreation Route

Sherwood Ice Arena

The Sherwood Ice Arena has hours that vary by day and event. The Ice Arena currently operates on the following schedule:

M	1:30 p.m. – 6:10 p.m.
T	6:00 a.m. – 6:30 p.m.
W	6:00 a.m. – 9:00 p.m.
Th	6:00 a.m. – 9:00 p.m.
F	6:00 a.m. – 9:30 p.m.
Sa	9:45 a.m. – 9:30 p.m.
Su	1:00 p.m – 4:00 p.m.

Summer School

Summer school is scheduled at both Sherwood High School (middle and high school students) and Archer Glen Elementary School (elementary school students). Classes run Monday through Thursday, June 24th until July 25th. Students will attend Summer school in two blocks, 8 a.m. to 10 a.m. and 10:15 a.m. to 12:15 p.m. Each of the four Summer Shuttle alternatives will provide direct service to Archer Glen Elementary. Students attending Sherwood High School can walk less than ½ mile from the 3rd and Washington shuttle stop.

Sports Activities

Skyhawks Sports Camp
July 15th-19th
9:00 a.m. to 3:00 p.m.
Middleton Elementary School

Bernie Fagan Soccer Camp
July 15th-19th
10:00 a.m. to 3:00 p.m.

Archer Glen Elementary School.

Football camp

July 22nd-26th 4:00 to 8:00 p.m.(tentative) (grades 3-6)
August 12th-16th 4:00 to 8:00 p.m.(tentative) (grades 9-12)

Sherwood High School

Volleyball

August 14th-16th 3:00 to 9:00 p.m. (grades 8-10)
August 14th-16th 9:00 a.m. to 1:00 p.m. (grades 7-8)
August 17th 10:00 a.m. to 1:00 p.m. (grades 8-10)

Sherwood High School

Boys' Soccer Camps

August 12th-16th 1:00 to 3:00 p.m. (grades 2-8)
August 12th-16th 4:00 to 6:00 p.m. (grades 9-12)

Snyder Park

Girl's Soccer Camps

August 5th-9th 6:00 to 8:00 p.m. (grades 2-8)
August 12th-16th 6:00 to 8:00 p.m. (grades 9-12)

Middleton Elementary School

General-Purpose Route

In addition to the above events, the General-Purpose Route also takes the following information into account. This information includes activities scheduled for children adults, and seniors.

YMCA

The YMCA is currently in the process of hiring a teen activity coordinator and is planning to build a new on-site teen facility which may increase future demand for transit service to this destination. Summer activities for children are, as yet, not announced. Summer events tentatively planned for teens include Middle School Madness, the third Friday of every month from 8:00 to 11:00 a.m.

General hours of operation for the YMCA are:

Monday - Friday 5:00 a.m. to 10:00 p.m.
Saturday 8:00 a.m. to 7:00 p.m.
Sunday 9:00 a.m. to 5:00 p.m.

Sherwood Senior Center

There are many regular summer activities scheduled by the Sherwood Senior Center throughout the day. Shuttle scheduling cannot accommodate all events, but does give special attention to the Senior Center's lunch, one of its most attended activities. Lunch at the Senior Center is scheduled Monday-Friday at 12:00 p.m.

Special Events

Summer Concerts in the Park

Wednesdays July 10th - August 21st

6:30 to 8:30 p.m.

Stella Olsen Park.

Farmers Market

Saturdays, June through September

8:30 a.m. - 1:00 p.m.

Veteran's Park

Robin Hood Festival

July 19th - 21st

Activities for this event have not yet been announced. Last year, most events occurred in downtown Sherwood, with the exception of an archery contest at the Elks Lodge near the YMCA Summer Shuttle stop. This stop is designed into all four alternatives.

Sherwood Library

Summer Reading Events (up to 375 people)

Tuesdays, June 18th - August 6th

2:00 p.m.

Storytelling (20 - 40 people)

Tuesdays 10:15 a.m.

Wednesdays 1:00 p.m.

APPENDIX C: SUMMER SHUTTLE ROUTE ALTERNATIVES

Appendix C-1: Stop Inventory

Appendix C-1: Summer Shuttle Stop Inventory

Stop	YRR	GPP	GPA	Primary Attractions within 1000 Feet	Secondary Attractions Served by Stop	Tri-Met Stop	Traffic Volume	Street Width	Housing Density	Signage Opportunities	Conditions at Stop
Railroad Avenue and Washington Avenue (See Appendix Map C-2.1)	X	X	X	• Old Town Sherwood	• Park and Ride Lot • City Hall	X	Medium	Wide	Medium	Stop Sign	No Sidewalk; Curbside Planting Strip
Willamette Street and Lincoln Avenue (See Appendix Map C-2.2)	X	X	X	N/A	N/A		Low	Medium	Medium	Stop Sign	No Sidewalk
Willamette Street and Roy Street (See Appendix Map C-2.3)	X	X	X	N/A	N/A		Low	Medium	Medium	None	Good
Murdock Park (See Appendix Map C-2.4)	X	X	X	N/A	• Murdock Park		Low	Wide	Medium	Stop Sign	Good
Brittany Lane and Sunset Boulevard (See Appendix Map C-2.5)	X	X	X	N/A	N/A		High-Sunset Low-Brittany	Medium	Medium	Stop Sign	Good
Snyder Park (See Appendix Map C-2.6)	X			N/A	• Snyder Park		High	Wide	Low-Medium	Various	Good
Archer Glen Elementary School (See Appendix Map C-2.7)	X	X	X	N/A	• Archer Glen Elementary School		High	Wide	Low-Medium	Various	Good
Pinehurst and Sunset Boulevard (See Appendix Map C-2.8)	X	X	X	N/A	• Neighborhood Park		High-Sunset Low-Pinehurst	Wide	Medium	Stop Sign	Good; Curbside Planting Strip
Mandel Drive and Multi-Use Path, between Pinehurst and Woodhaven (See Appendix Map C-2.9)		X	X	N/A	• Multi-Use Pathway		Low	Medium	Medium	Bollard at Multi-Use Pathway	Good
Sherwood YMCA (See Appendix Map C-2.10)	X	X	X	• Sherwood YMCA	• Middleton Elementary • Sherwood Elks Club		Parking Lot-Low	Wide	Low	None	Very Good
Swanstrom Drive and List Place (See Appendix Map C-2.11)	X	X	X	N/A	• N/A		Low	Medium	Low	Street Sign	Good; Curbside Planting Strip
Ladyfern and Roellich Avenue (See Appendix Map C-2.12)	X	X	X	N/A	• Neighborhood Park		Roellich-Medium Ladyfern-Low	Medium	Low	Street Sign	Good; Curbside Planting Strip

Stop	YRR	GPP	GPA	Primary Attractions within 1000 Feet	Secondary Attractions Served by Stop	Tri-Met Stop	Traffic Volume	Street Width	Housing Density	Signage Opportunities	Conditions at Stop
Sherwood Ice Arena (See Appendix Map C-2.13)	X	X	X	• Sherwood Ice Arena	• Safeway • Pizza Schmizza • Starbuck's • Great Clips for Hair		Parking Lot-Medium	Wide	Low	Various	Very Good
Regal Cinemas (See Appendix Map C-2.14)	X	X	X	• Regal Cinemas	• Park and Ride Lot		Parking Lot-Heavy	Wide	Very Low	Various	Very Good
Sherwood Market Center (See Appendix Map C-2.15)	X	X	X	• Sherwood Market Center	N/A		Parking Lot-High	Parking Lot	Very Low	Various	Good; See Explanation in Note 11 Below
Sherwood Plaza (See Appendix Map C-2.16)	X	X	X	• Sherwood Plaza	• McDonalds • G.I. Joe's • Domino's Pizza	X	High	Wide	Very Low	Tri-Met Sign	Good; Dangerous Street Crossing for Pedestrians
Sherwood Senior Center and Sherwood Public Library (See Appendix Map C-2.17)	X	X	X	• Sherwood Senior Center • Sherwood Public Library	• Clyde Hopkins Elementary School • Sherwood Middle School	X	High	Wide	Medium	Tri-Met Sign	Good; Pulling over might block traffic; Dangerous Street Crossing for Pedestrians
3 rd Street and Washington Avenue (See Appendix Map C-2.18)	X	X	X	• Stella Olsen Park	• High School-Long Walk	X	High	Wide	Medium	Stop Sign	Good
Sherwood Business Park (See Appendix Map C-2.19)			X		• Sherwood Business Park		Low	Parking Lot	Very Low	None	No Sidewalk; Dangerous Street Crossing for Pedestrians

Description of Column Headings:

1. Stops are defined as the closest intersection or landmark to where shuttle stops are planned.
2. YRR = Youth and Recreation Route; GPP=General Purpose Preferred Route; GPA=General Purpose Alternate Route
3. Primary Attractions within 1000 Feet =This category lists indicates when the stop is within 1000 feet of the top five attractions determined for youths and adults by surveys administered to each group. The top 5 attractions for adults in order of decreasing preference are: Sherwood YMCA, Regal Cinemas, Sherwood Plaza, Old Town Sherwood, and Sherwood Market Center. The top 5 attractions for youths in order of decreasing preference are: Regal Cinemas, Sherwood Ice Arena, Sherwood YMCA, Sherwood Market Center, and McDonald's. The 1000-foot distance figure is consistent with the distance buffer criterion used for designing routes and stops.
4. Secondary Attractions are destinations served by individual stops that where indicated as important by survey respondents, though not of principal importance.
5. Tri-Met Stop indicates the presence or absence of a stop for Tri-Met Lines 12, 94X, or 95X at or immediately nearby the Summer Shuttle stop location.
6. Traffic Volume is one indicator of safety nearby the stop. It also gives an indication of traffic difficulty that might be experienced by the Summer Shuttle. Shuttle stops inside of parking lots are indicated at some stops; traffic volume for such stops refers to traffic circulation within the parking lot.
7. Street Width is an important indicator for ease of shuttle movement and maneuverability.
8. Housing Density indicates the mix and intensity of nearby residential land uses.
9. Signage Opportunities indicates potential places to label designated Summer Shuttle Stops.
10. Conditions at Stop is a general measure of passenger safety and comfort at a shuttle stop and the ease of operation for arriving and departing shuttles. It includes the presence or absence of sidewalks, lighting, the presence of a planting strip between the sidewalk and the curb, and lack of pullout room for a shuttle to pull clear of traffic. A score of "good" indicates reasonable lighting and the presence of a sidewalk, while "very good" includes shelter. Other noteworthy stop considerations are listed in this field.
11. Sherwood Market Center stop: after departing Regal Cinemas, the shuttle pulls directly into the parking lot at Sherwood Market Center and then turns clockwise to pick up and drop off passengers on the west side of the island; this side of the island has less traffic and more room for passenger loading. Additionally, the island has more space and accessible curb ramps on this side to better accommodate handicapped passengers. The shuttle proceeds by turning clockwise again from the island and resuming the route to the stop across from Sherwood Plaza.

Appendix C-2: Stop Analysis Photographs



Railroad and Washington

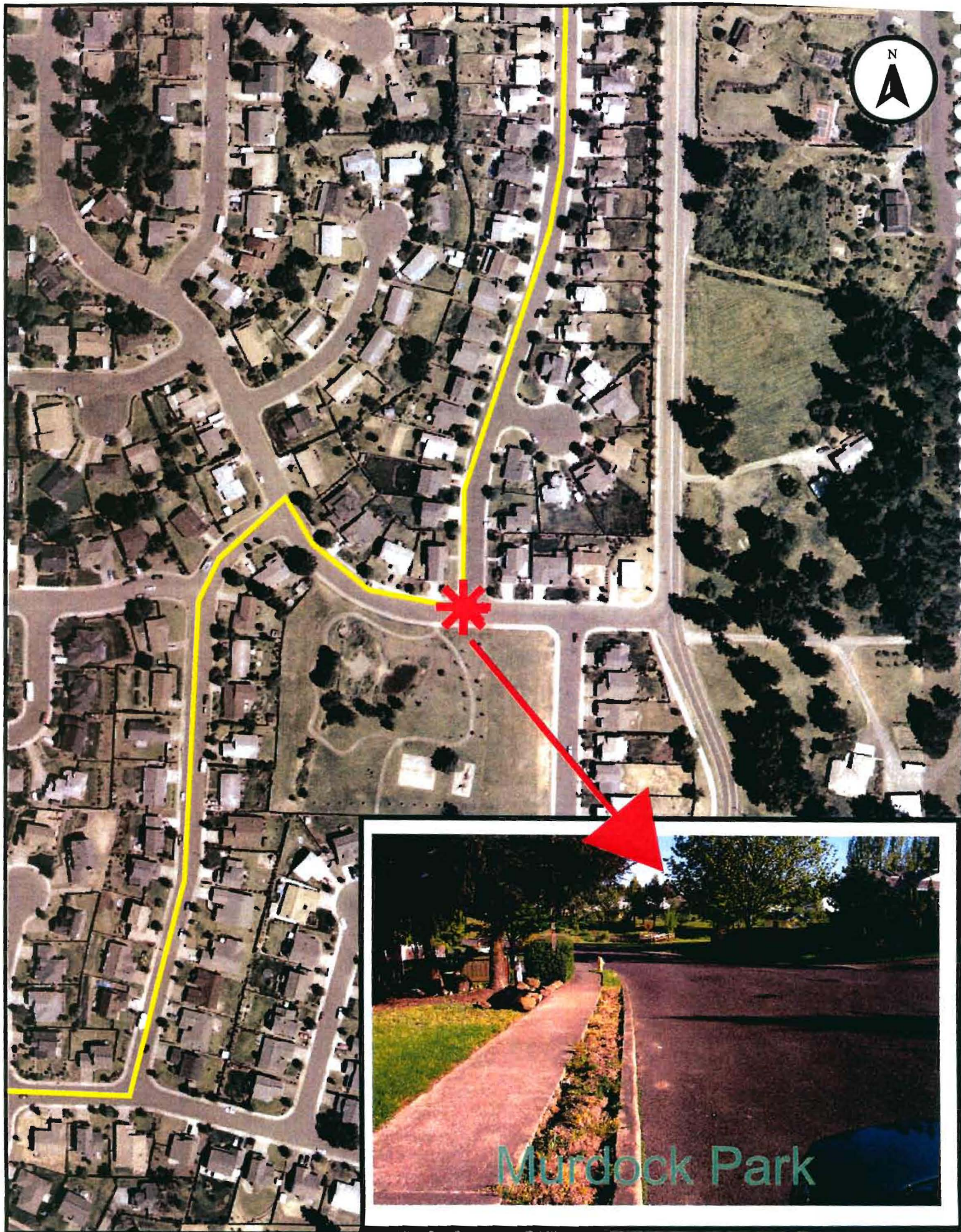


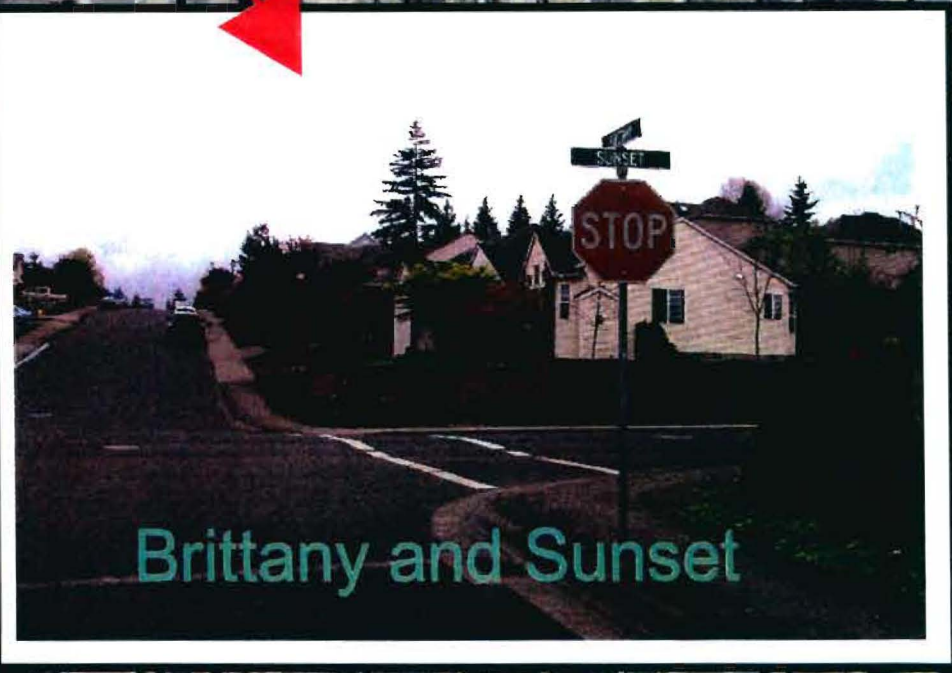
Willamette and Lincoln



Willamette and Roy



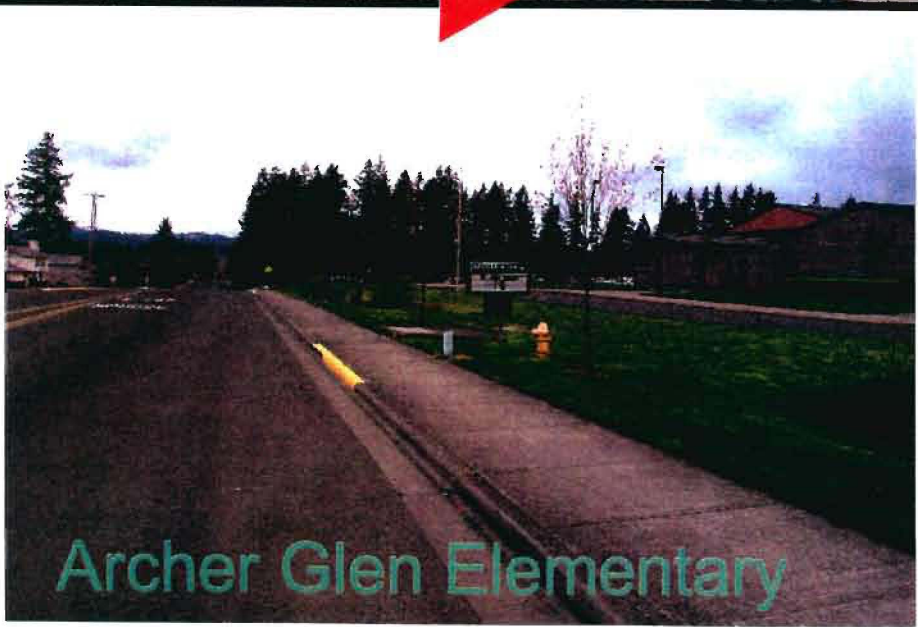




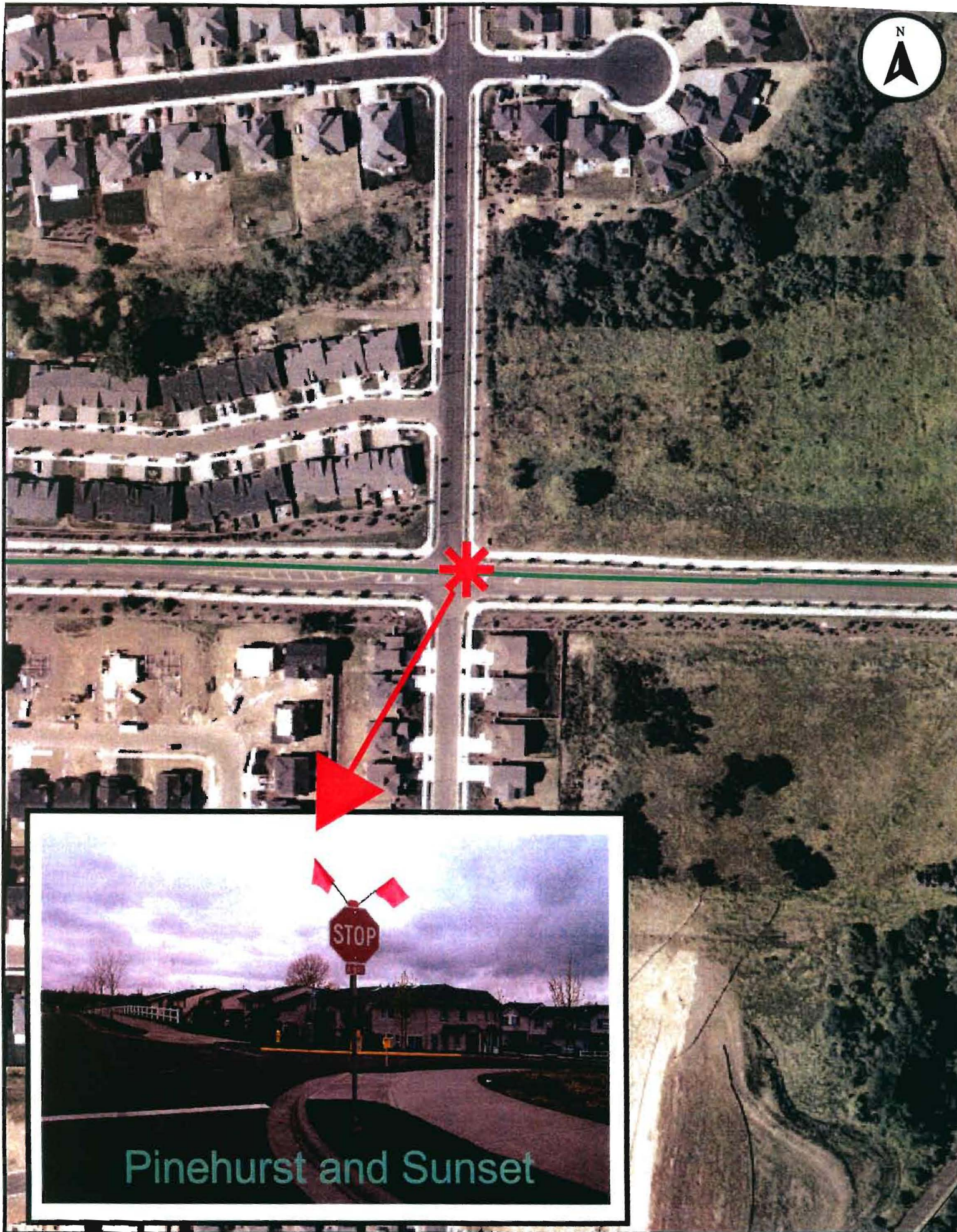
Brittany and Sunset



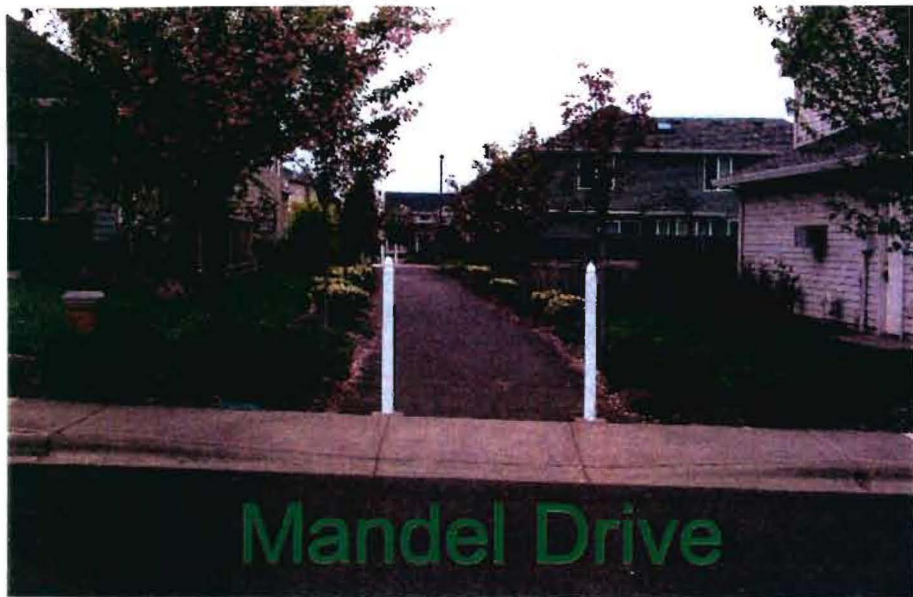
Snyder Park



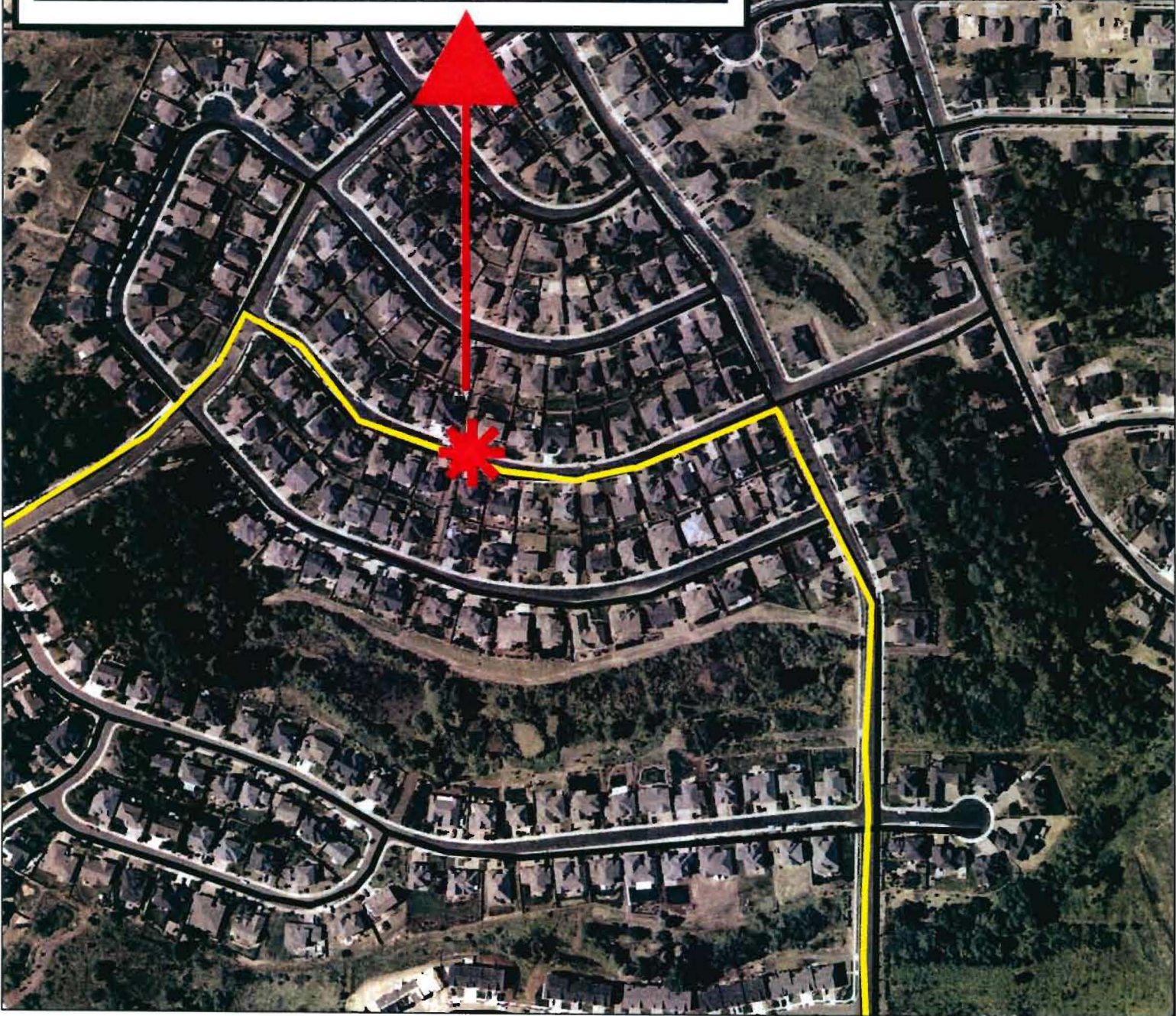
Archer Glen Elementary

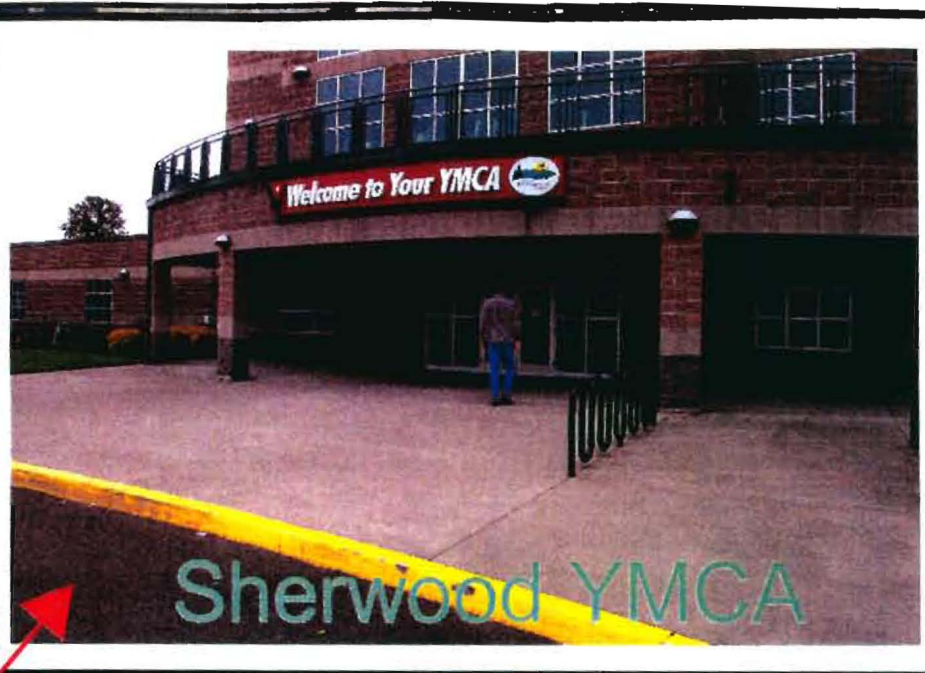
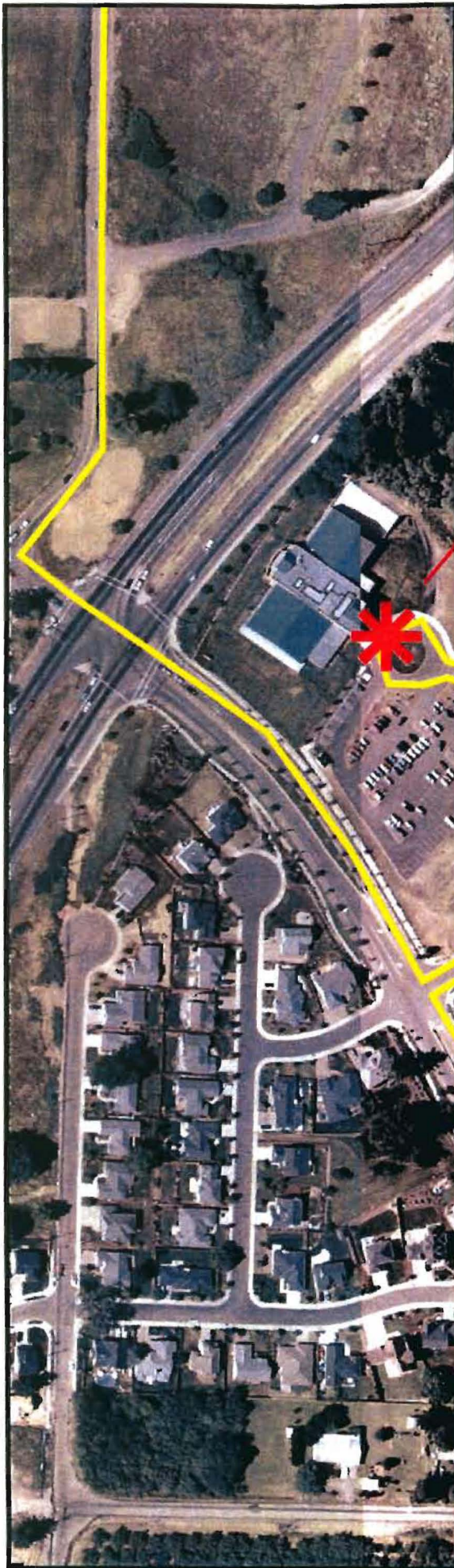


Pinehurst and Sunset



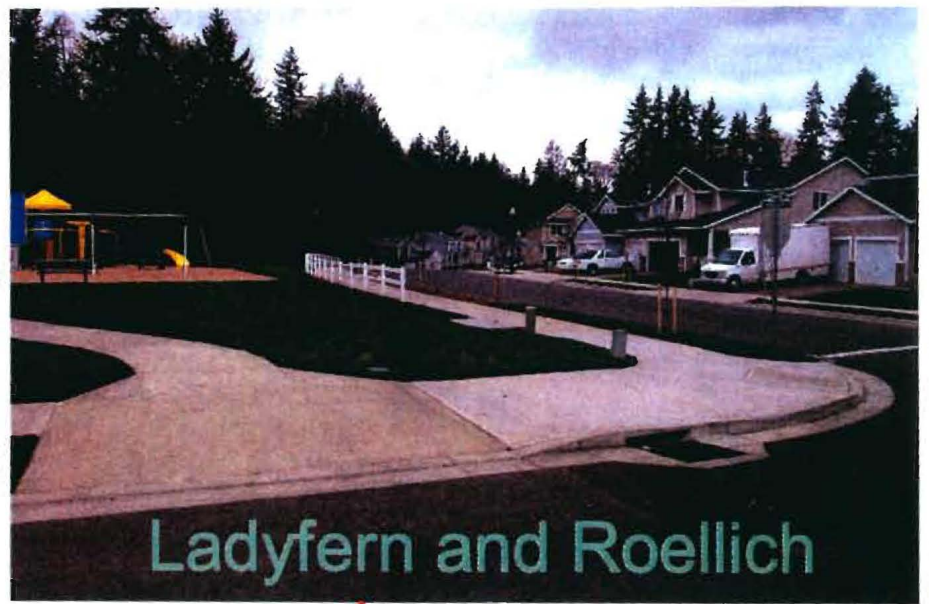
Mandel Drive



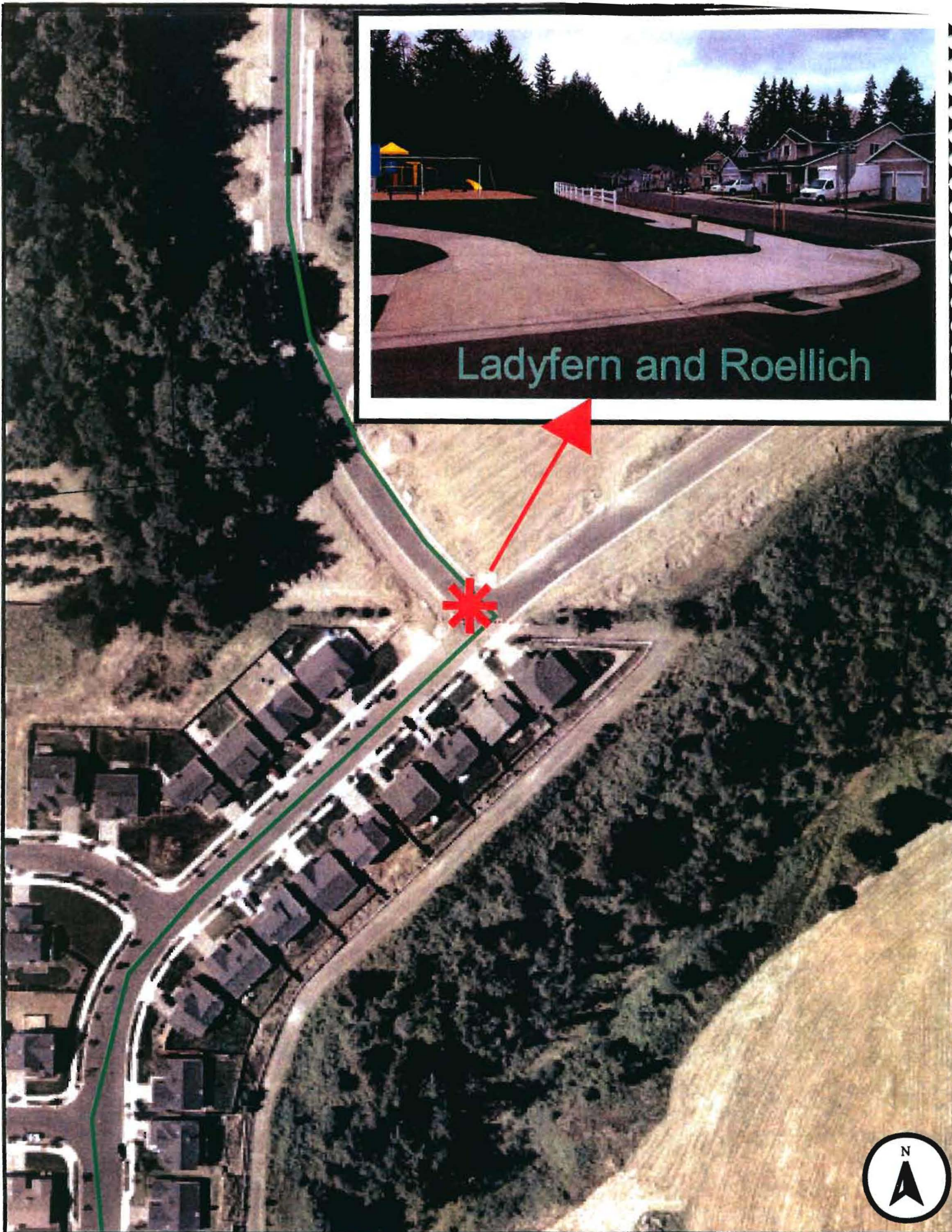




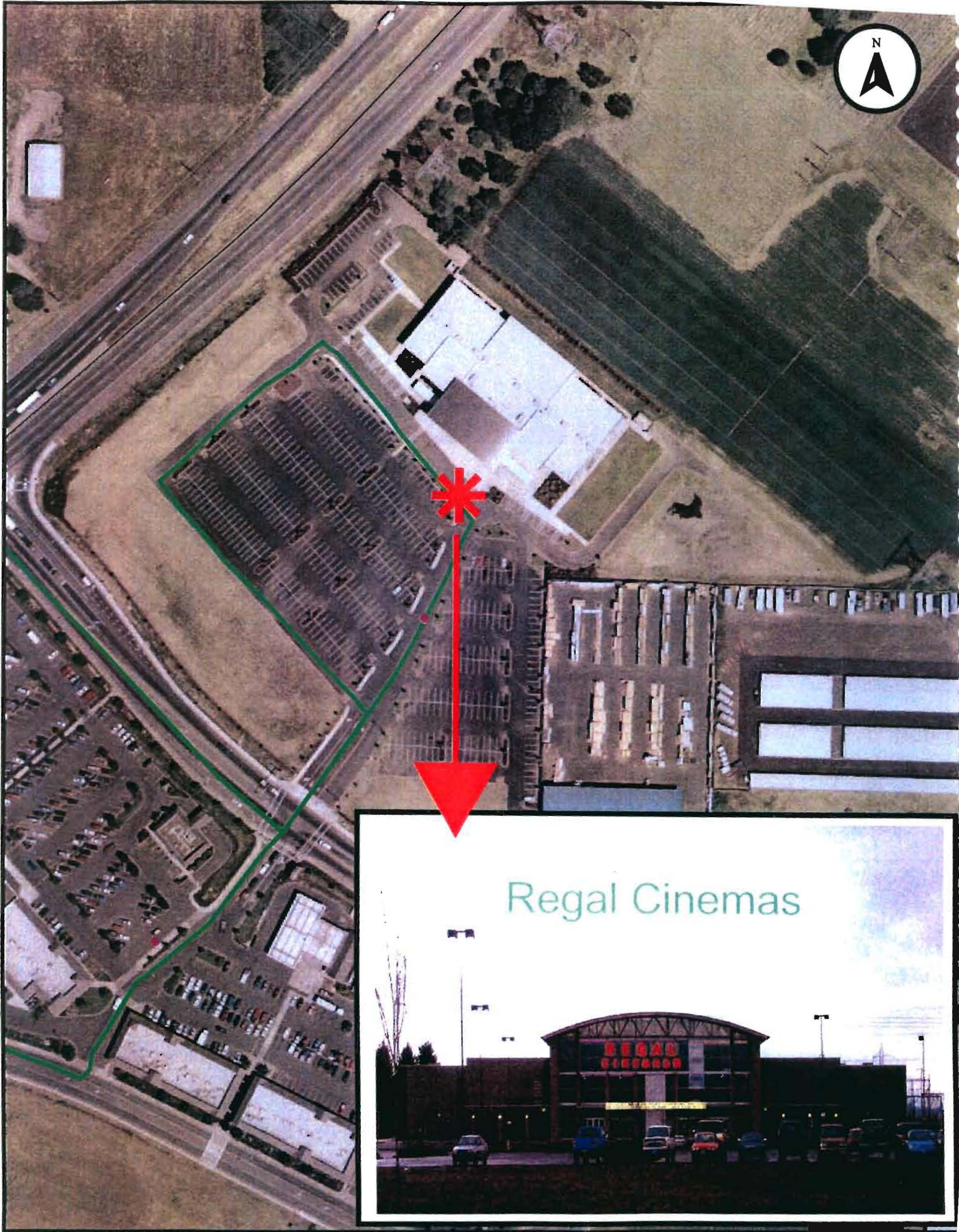
List and Swanstrom

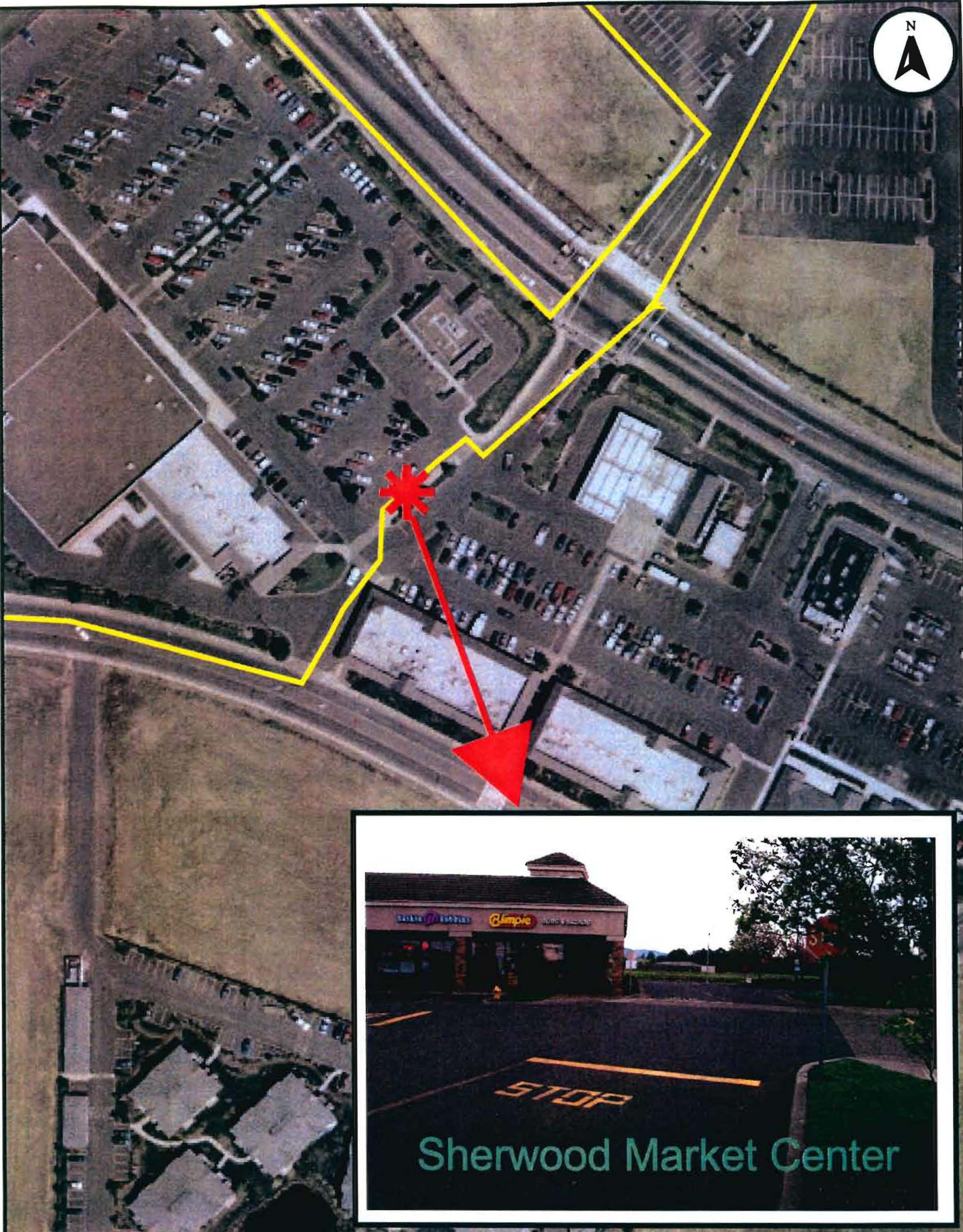


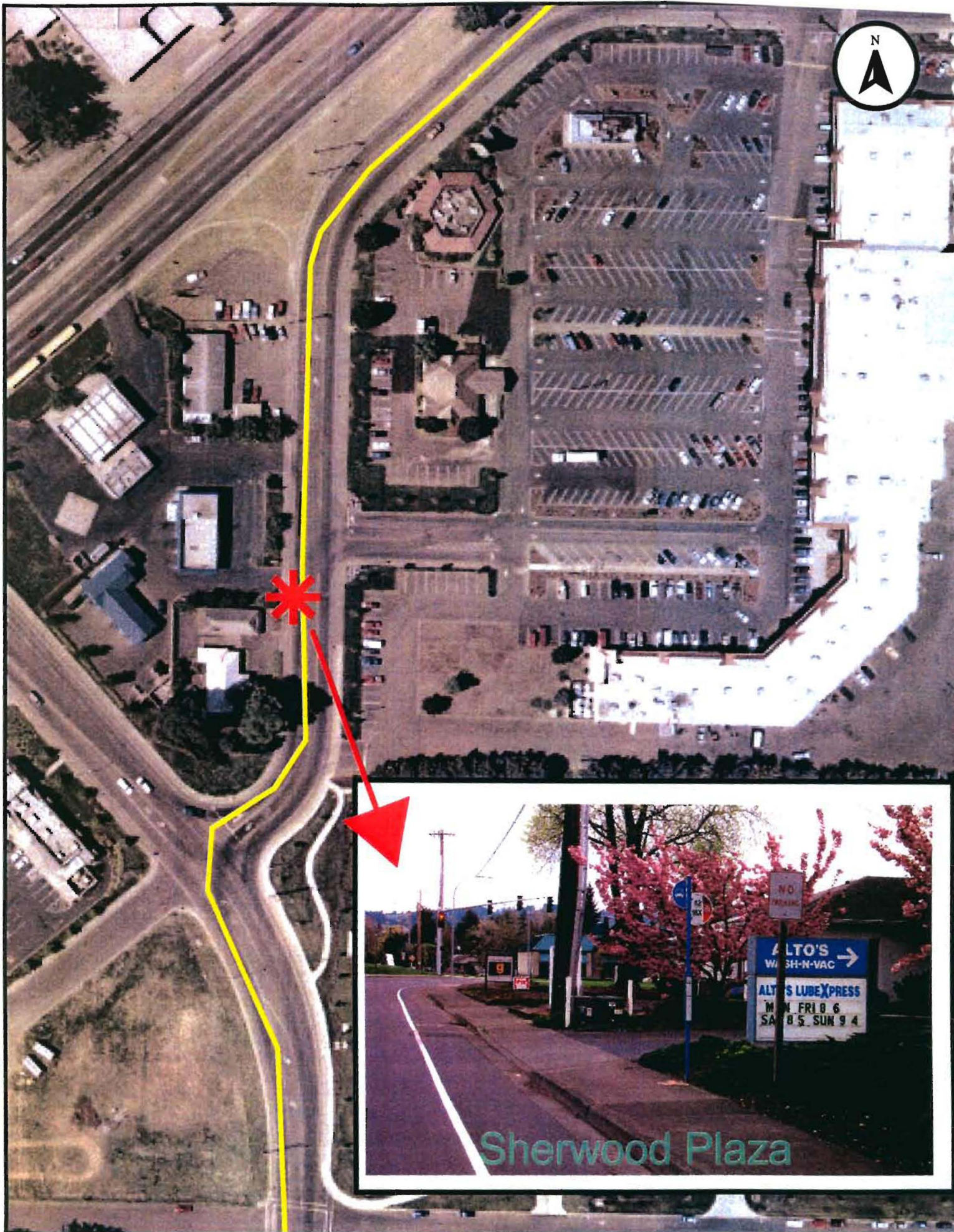
Ladyfern and Roellich





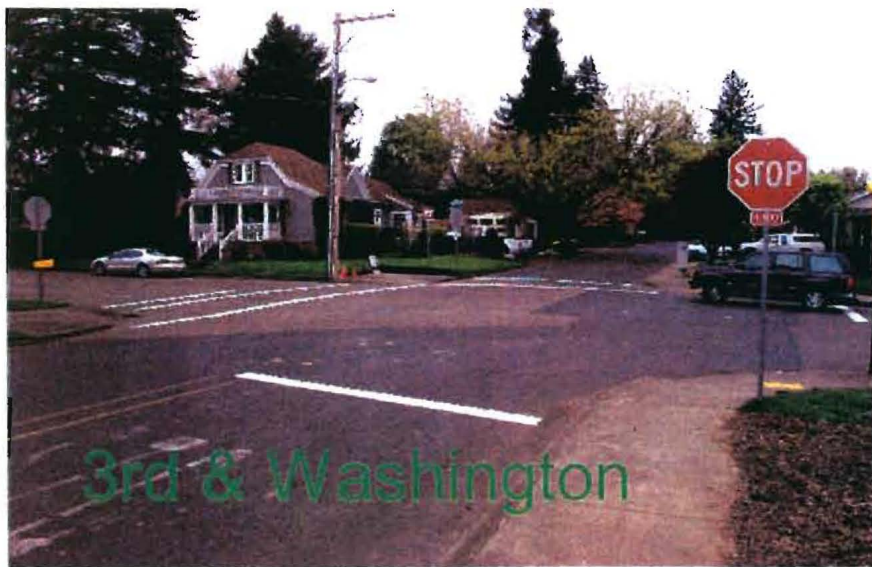
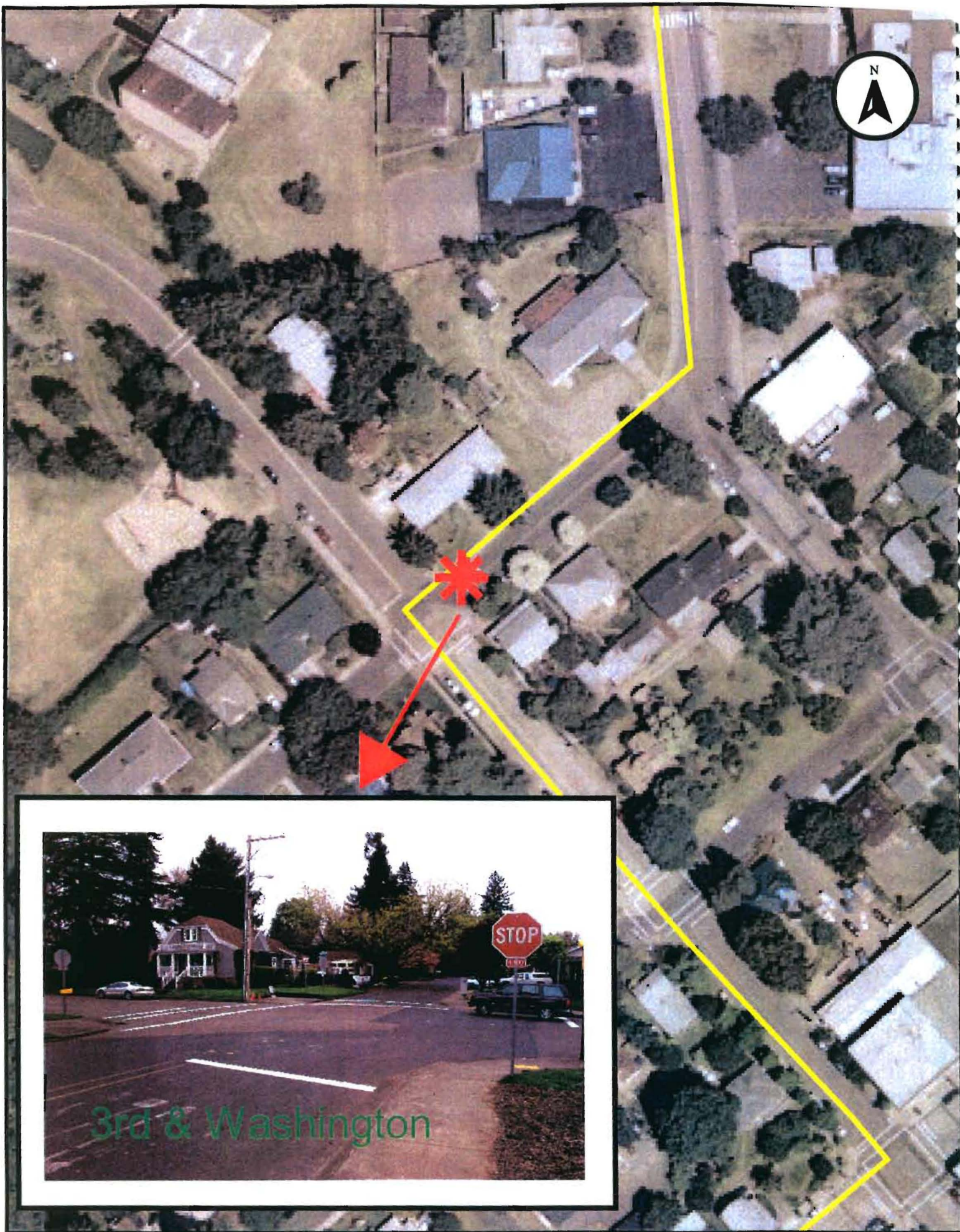






Sherwood Plaza





3rd & Washington



Appendix C-3: Route Schedules

Youth and Recreation Route: Full-Day schedule

Rail. & Wash.	7:39	8:24	9:09	9:54	10:39	11:24	12:09	12:54	13:39	14:24	15:09	15:54	16:39	17:24	18:09	18:54	19:39	20:24	21:09
Will. & High.	7:40	8:25	9:10	9:55	10:40	11:25	12:10	12:55	13:40	14:25	15:10	15:55	16:40	17:25	18:10	18:55	19:40	20:25	21:10
Will. & Roy	7:42	8:27	9:12	9:57	10:42	11:27	12:12	12:57	13:42	14:27	15:12	15:57	16:42	17:27	18:12	18:57	19:42	20:27	21:12
Roy & Kathy	7:44	8:29	9:14	9:59	10:44	11:29	12:14	12:59	13:44	14:29	15:14	15:59	16:44	17:29	18:14	18:59	19:44	20:29	21:14
Sunset & Brittany	7:46	8:31	9:16	10:01	10:46	11:31	12:16	13:01	13:46	14:31	15:16	16:01	16:46	17:31	18:16	19:01	19:46	20:31	21:16
Snyder Park	7:47	8:32	9:17	10:02	10:47	11:32	12:17	13:02	13:47	14:32	15:17	16:02	16:47	17:32	18:17	19:02	19:47	20:32	21:17
Archer Glenn	7:50	8:35	9:20	10:05	10:50	11:35	12:20	13:05	13:50	14:35	15:20	16:05	16:50	17:35	18:20	19:05	19:50	20:35	21:20
Pine. & Sunset	7:53	8:38	9:23	10:08	10:53	11:38	12:23	13:08	13:53	14:38	15:23	16:08	16:53	17:38	18:23	19:08	19:53	20:38	21:23
YMCA	7:58	8:43	9:28	10:13	10:58	11:43	12:28	13:13	13:58	14:43	15:28	16:13	16:58	17:43	18:28	19:13	19:58	20:43	21:28
Swan. & List	8:03	8:48	9:33	10:18	11:03	11:48	12:33	13:18	14:03	14:48	15:33	16:18	17:03	17:48	18:33	19:18	20:03	20:48	21:33
Lady. & Roel.	8:05	8:50	9:35	10:20	11:05	11:50	12:35	13:20	14:05	14:50	15:35	16:20	17:05	17:50	18:35	19:20	20:05	20:50	21:35
Ice Arena	8:08	8:53	9:38	10:23	11:08	11:53	12:38	13:23	14:08	14:53	15:38	16:23	17:08	17:53	18:38	19:23	20:08	20:53	21:38
Regal Cinema	8:13	8:58	9:43	10:28	11:13	11:58	12:43	13:28	14:13	14:58	15:43	16:28	17:13	17:58	18:43	19:28	20:13	20:58	21:43
Market Center	8:16	9:01	9:46	10:31	11:16	12:01	12:46	13:31	14:16	15:01	15:46	16:31	17:16	18:01	18:46	19:31	20:16	21:01	21:46
Plaza	8:18	9:03	9:48	10:33	11:18	12:03	12:48	13:33	14:18	15:03	15:48	16:33	17:18	18:03	18:48	19:33	20:18	21:03	21:48
Sr. Center & Lib.	8:20	9:05	9:50	10:35	11:20	12:05	12:50	13:35	14:20	15:05	15:50	16:35	17:20	18:05	18:50	19:35	20:20	21:05	21:50
3rd & Wash.	8:22	9:07	9:52	10:37	11:22	12:07	12:52	13:37	14:22	15:07	15:52	16:37	17:22	18:07	18:52	19:37	20:22	21:07	21:52
Rail. & Wash.	8:24	9:09	9:54	10:39	11:24	12:09	12:54	13:39	14:24	15:09	15:54	16:39	17:24	18:09	18:54	19:39	20:24	21:09	21:54

Youth and Recreation Route: 8-Hour schedule

Rail. & Wash.	9:54	10:39	11:24	12:09	12:54	13:39	14:24	15:09	15:54	16:39
Will. & High.	9:55	10:40	11:25	12:10	12:55	13:40	14:25	15:10	15:55	16:40
Will. & Roy	9:57	10:42	11:27	12:12	12:57	13:42	14:27	15:12	15:57	16:42
Roy & Kathy	9:59	10:44	11:29	12:14	12:59	13:44	14:29	15:14	15:59	16:44
Sunset & Brittany	10:01	10:46	11:31	12:16	13:01	13:46	14:31	15:16	16:01	16:46
Snyder Park	10:02	10:47	11:32	12:17	13:02	13:47	14:32	15:17	16:02	16:47
Archer Glenn	10:05	10:50	11:35	12:20	13:05	13:50	14:35	15:20	16:05	16:50
Pine. & Sunset	10:08	10:53	11:38	12:23	13:08	13:53	14:38	15:23	16:08	16:53
YMCA	10:13	10:58	11:43	12:28	13:13	13:58	14:43	15:28	16:13	16:58
Swan. & List	10:18	11:03	11:48	12:33	13:18	14:03	14:48	15:33	16:18	17:03
Lady. & Roel.	10:20	11:05	11:50	12:35	13:20	14:05	14:50	15:35	16:20	17:05
Ice Arena	10:23	11:08	11:53	12:38	13:23	14:08	14:53	15:38	16:23	17:08
Regal Cinema	10:28	11:13	11:58	12:43	13:28	14:13	14:58	15:43	16:28	17:13
Market Center	10:31	11:16	12:01	12:46	13:31	14:16	15:01	15:46	16:31	17:16
Plaza	10:33	11:18	12:03	12:48	13:33	14:18	15:03	15:48	16:33	17:18
Sr. Center & Lib.	10:35	11:20	12:05	12:50	13:35	14:20	15:05	15:50	16:35	17:20
3rd & Wash.	10:37	11:22	12:07	12:52	13:37	14:22	15:07	15:52	16:37	17:22
Rail. & Wash.	10:39	11:24	12:09	12:54	13:39	14:24	15:09	15:54	16:39	17:24

General Purpose Route: Full-Day schedule

Rail. & Wash.	9:33	10:18	11:03	11:48	12:33	13:18	14:03	14:48	15:33	16:18	17:03	17:48	18:33	19:18	20:03	20:48
Will. & Norton	9:35	10:20	11:05	11:50	12:35	13:20	14:05	14:50	15:35	16:20	17:05	17:50	18:35	19:20	20:05	20:50
Will. & Roy	9:37	10:22	11:07	11:52	12:37	13:22	14:07	14:52	15:37	16:22	17:07	17:52	18:37	19:22	20:07	20:52
Murdock Park	9:39	10:24	11:09	11:54	12:39	13:24	14:09	14:54	15:39	16:24	17:09	17:54	18:39	19:24	20:09	20:54
Sunset & Brittany	9:41	10:26	11:11	11:56	12:41	13:26	14:11	14:56	15:41	16:26	17:11	17:56	18:41	19:26	20:11	20:56
Archer Glenn	9:43	10:28	11:13	11:58	12:43	13:28	14:13	14:58	15:43	16:28	17:13	17:58	18:43	19:28	20:13	20:58
Pine. & Sunset	9:46	10:31	11:16	12:01	12:46	13:31	14:16	15:01	15:46	16:31	17:16	18:01	18:46	19:31	20:16	21:01
Mandel	9:48	10:33	11:18	12:03	12:48	13:33	14:18	15:03	15:48	16:33	17:18	18:03	18:48	19:33	20:18	21:03
YMCA	9:52	10:37	11:22	12:07	12:52	13:37	14:22	15:07	15:52	16:37	17:22	18:07	18:52	19:37	20:22	21:07
Swan. & List	9:57	10:42	11:27	12:12	12:57	13:42	14:27	15:12	15:57	16:42	17:27	18:12	18:57	19:42	20:27	21:12
Lady. & Roel.	9:59	10:44	11:29	12:14	12:59	13:44	14:29	15:14	15:59	16:44	17:29	18:14	18:59	19:44	20:29	21:14
Ice Arena	10:02	10:47	11:32	12:17	13:02	13:47	14:32	15:17	16:02	16:47	17:32	18:17	19:02	19:47	20:32	21:17
Regal Cinema	10:07	10:52	11:37	12:22	13:07	13:52	14:37	15:22	16:07	16:52	17:37	18:22	19:07	19:52	20:37	21:22
Market Center	10:10	10:55	11:40	12:25	13:10	13:55	14:40	15:25	16:10	16:55	17:40	18:25	19:10	19:55	20:40	21:25
Plaza	10:12	10:57	11:42	12:27	13:12	13:57	14:42	15:27	16:12	16:57	17:42	18:27	19:12	19:57	20:42	21:27
Sr. Center & Lib.	10:14	10:59	11:44	12:29	13:14	13:59	14:44	15:29	16:14	16:59	17:44	18:29	19:14	19:59	20:44	21:29
3rd & Wash.	10:16	11:01	11:46	12:31	13:16	14:01	14:46	15:31	16:16	17:01	17:46	18:31	19:16	20:01	20:46	21:31
Rail. & Wash.	10:18	11:03	11:48	12:33	13:18	14:03	14:48	15:33	16:18	17:03	17:48	18:33	19:18	20:03	20:48	21:33

General Purpose Route: 8-Hour schedule

Rail. & Wash.	11:03	11:48	12:33	13:18	14:03	14:48	15:33	16:18	17:03	17:48
Will. & Norton	11:05	11:50	12:35	13:20	14:05	14:50	15:35	16:20	17:05	17:50
Will. & Roy	11:07	11:52	12:37	13:22	14:07	14:52	15:37	16:22	17:07	17:52
Murdock Park	11:09	11:54	12:39	13:24	14:09	14:54	15:39	16:24	17:09	17:54
Sunset & Brittany	11:11	11:56	12:41	13:26	14:11	14:56	15:41	16:26	17:11	17:56
Archer Glenn	11:13	11:58	12:43	13:28	14:13	14:58	15:43	16:28	17:13	17:58
Pine. & Sunset	11:16	12:01	12:46	13:31	14:16	15:01	15:46	16:31	17:16	18:01
Mandel	11:18	12:03	12:48	13:33	14:18	15:03	15:48	16:33	17:18	18:03
YMCA	11:22	12:07	12:52	13:37	14:22	15:07	15:52	16:37	17:22	18:07
Swan. & List	11:27	12:12	12:57	13:42	14:27	15:12	15:57	16:42	17:27	18:12
Lady. & Roel.	11:29	12:14	12:59	13:44	14:29	15:14	15:59	16:44	17:29	18:14
Ice Arena	11:32	12:17	13:02	13:47	14:32	15:17	16:02	16:47	17:32	18:17
Regal Cinema	11:37	12:22	13:07	13:52	14:37	15:22	16:07	16:52	17:37	18:22
Market Center	11:40	12:25	13:10	13:55	14:40	15:25	16:10	16:55	17:40	18:25
Plaza	11:42	12:27	13:12	13:57	14:42	15:27	16:12	16:57	17:42	18:27
Sr. Center & Lib.	11:44	12:29	13:14	13:59	14:44	15:29	16:14	16:59	17:44	18:29
3rd & Wash.	11:46	12:31	13:16	14:01	14:46	15:31	16:16	17:01	17:46	18:31
Rail. & Wash.	11:48	12:33	13:18	14:03	14:48	15:33	16:18	17:03	17:48	18:33

APPENDIX D: CONTRACTING TRANSIT SERVICE

The transit contracting industry in the U.S. has expanded since the 1980s. In 1985, fewer than 9 percent of revenue miles were provided under contracting arrangements (Teal, 1988). Furthermore, almost 60 percent of these miles were in demand responsive services, leaving only 2 percent of all fixed-route revenue miles provided under contract. By the late 1980s many more agencies had begun to contract some or all of their routes. From 1989 to 1993, the number of agencies that reported to the Federal Transit Administration that they contract for fixed-route motorbus services grew from 93 to 118, an increase of 27 percent. The number of revenue hours of motorbus services under contract grew by 133 percent over this five-year period, and now comprises 5.8 percent of all fixed-route revenue hours (U.S. Dept. of Transportation 1993; 1990).

A number of studies have examined the effects of contracting on transit system efficiency. Most focus on realized or potential cost savings and the vast majority reported substantial savings over publicly operated routes. Proponents of contracting claim that public transit agencies are monopolies strongly influenced by labor unions, and that they have little incentive to operate efficiently. They argue that introducing competition in public transit will allow market forces to determine appropriate wages for employees while providing more efficient service for users. Contracting opponents, on the other hand, assert that contracting is an attempt to turn back the clock on labors gains to an era when employees worked long hours for little pay and few benefits.

The Federal Transit Administration estimates that service contracting can produce cost savings of between 25 and 30 percent per unit of service provided (Bladikas, 1992). Some studies show much higher cost savings in the range of 30 to 60 percent (Morlok, 1985; Ernst & Young, 1991 and 1992; Richmond, 1992; Reason Foundation, 1991). Other studies, however, portray contracting as far less successful. Still, few reports dispute claims of some level of cost savings as a result of contracting out of transit service. Virtually every study indicates that most savings come in reduced labor expenses. Most private transit providers pay staff substantially less than their public counterparts.

When viewed over time and in the aggregate, transit services operated by private contractors are not always less expensive or more efficient than services directly operated by transit agencies. Some reports find that contracting for transit services consistently fails to produce promised benefits. Rather, they cite a complex set of conditions that influence transit operating costs and efficiency. Often, it is the provision of service to difficult service areas and restrictive work rules that contribute most directly to increased operating costs. In some instances contracting out services might be the best way to improve the conditions for more cost-effective operation, and in some instances the threat of privatization can lead to improved efficiencies in publicly operated services by promoting new contractual arrangements. On the other hand, it is the presence or absence of particular factors (density, demand, etc.) associated with high or low costs, and those factors can differ from one transit operation to another. In some cases, problems leading to high operating costs and poor efficiency can be addressed by public agencies through other approaches than contracting out service. Contracting can be a useful tool for improved efficiency, but it is not the only approach available (McCullough, 1998).

Advantages of Contracting

There are several advantages a municipality can gain by contracting transit service:

- Expertise of field specialists in areas such as fleet maintenance
- Lower costs, in that the contracted firm has economies of scale as well as expertise in operations.
- Marketplace benchmarks against which the efficiency of other operations can be measured.
- The hiring agency sets performance standards and holds contractors accountable.
- The burdens of detail management are shifted from the hiring agency to the contracted firm.
- The hiring agency is free to focus on goals and policy options to achieve them rather than the details of daily operation.

Disadvantages of Contracting

Transit Dependant Riders Lose

Contracting out services has led to criticism that transit dependent riders are negatively impacted by profit driven transit operators. In a never-ending process of cost cutting, it is often late night, weekend service and frequency of service that suffers most. Proposed cuts amount to a night curfew for transit dependant communities. Night workers may lose jobs and women may be faced with difficult and dangerous decisions at the end of a night out. People with more resources are less impacted by these cuts, but people who rely on transit, the poor, the young and the elderly, may be forced to compromise health, safety and employment considerations based on transit service cuts.

Expense to Oversee Contracts

Columbia Professor Elliott Sclar recently traveled across the country, examining how different state and local governments attempted to privatize their services. He found that privatization often results in less service for more money, because agencies frequently overlook the high cost of making sure work gets done correctly.

He cites an experiment undertaken in Miami, in which the Federal government gave the city 40 buses -- 20 that the city would run and 20 to be run by a private company.

Private bus companies are often adept at running inter-city routes but often don't know enough about a city's transit system to mesh the different commuter routes. Additionally, the company took an initial loss to win the contract, then tried to save on operating costs. Within six months, ridership dropped 18 percent; six months later, it fell another 13 percent.

This represents what Sclar and other economists call a "moral hazard," a conflict between what the government and the company want. In this case, it was in the company's best interest to keep costs down through maintaining a high rate of driver turn over and by neglecting bus maintenance. Unlike the local operating agency, the company cared little about its ridership. Its customer was not the riding public.

"Skimming the Cream"

"Skimming the Cream" is a term used to describe the results of contractors or competitors taking profits from public transit services by either taking over the most profitable routes in a system or by using an established public providers infrastructure but picking up paying customers just before regularly scheduled buses arrive. This interloping is a form of "skimming the cream". A company may take pains to establish some viable bus routes, but then interlopers in banged-up old vans come around and collect the waiting passengers just before the scheduled service is due to arrive (Eckert and Hilton 1972; Roth and Wynne 1982). This will upset coordination in that the scheduled vehicle is harmed by the interloper activity, and, if such activity forces the scheduled service to give up the route, passengers for a time may suffer discoordination by waiting for a bus that never arrives. Entrepreneurs might know that if they were to attempt to set up a bus route, the interlopers would only descend to "skim the cream" and ultimately destroy what had been created. In consequence, no one sets up a service, no one interlopes, and no one waits to be picked up. This would be coordination equilibrium, but obviously a poor result in terms of metacoordination.

Disjointed Service

Another criticism maintains that piecemeal operators in a free market will inevitably be *disjointed*. They will fail to coordinate schedules and to achieve smooth through-ticketing and interchange. Riders will be frustrated in connecting the pieces of their journey, and will have to make a separate transaction for each piece.

In reviewing bus service in Britain, Peter White (1995, 206) speaks of "the instability and wasteful duplication found in deregulated areas".

While these arguments may currently be outside the realistic concern of Sherwood's proposed Summer Shuttle it is important to give a full picture of the nature of contracting out service. Contracting out transit service is not a foolproof, unquestionable decision. Furthermore, while the Summer Shuttle Pilot Plan is designed only to examine the start up of a transit service, it is possible that through success the City of Sherwood will opt to continue or expand this service and at that time look to decide on whether or not to contract out service. This presentation of arguments against contracting out transit service will inform that future decision.

Appendix D

List of Local Contractors

Several local transit-contracting companies were interviewed for information pertaining to contracting for Sherwood's Summer Shuttle. These numbers are speculative and may change depending on the level of service provided, the length of the route, the number of vehicles employed, the number of service hours provided, and several other factors. No concrete numbers can be made available until the City of Sherwood announces a Request for Proposals (RFP).

Renting or Buying Buses

Most transit contractors require that the contractor rent or purchase vans and/or buses to be used for service. It may not be feasible for the City of Sherwood to buy new vehicles for a seasonal shuttle service. Therefore, it is important that the City of Sherwood be clear during negotiations that the service they are seeking does not include the purchase of a van or bus. Some contractors have large enough fleets that purchasing or renting is not required. If the City feels its best option is to rent or buy vehicles, they may decide to use 'pre-owned' vehicles. These are usually available from the following agencies:

Western Bus Sales

Marlon Rohlena

1-800-258-2473

<http://www.westernbus.com/>

ODOT

Buses for sale

<http://www.odot.state.or.us/pubtrans/thingstobuy.html>

Contractor Contact Information

Contact Information	Reference District	Owns/Rents	Hourly Rates
Ryder Transit Inc. 703 S. Blaine Street Newberg, Oregon 7132-3333 (503) 538-8365	Not Available	Not Available	Not Available
Wheels Community Transportation Oregon Housing And Associated Services Jay Lynch or Nisa James 2755 19 th Street SE Salem, OR 97302 (503) 585-6193	Currently runs CARTS program in Marion County and Wheels for SAMTD. This is based on a six hour day. Likely to be cheaper per hour for longer service day. →	Rents	(\$30-40/hr) for a 22-person bus 6 hour day = \$240, 12 hour day = \$480 or 90 days(66 working days)/6 hrs = \$15,840; 90 days (66 working days)/12 hours = \$31,680 Includes driver, insurance and back up bus
Marson Trucking Attn: Jeff Marson 317 Leroy Street # 3 Molalla, Oregon 97038-9311 (503) 829-2709	Currently provides transit service for Molalla Transit District (South Clackamas Transportation District (SCTD)).	Owns	Current contract with SCTD is for \$36.76 per hour.

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Contact Information	Reference District	Owns/Rents	Hourly Rates
First Student Corporate Office Attn: Tom Rabus 1625 SE Hogan Road Gresham, OR 97080-8252 (503) 667-8090 (www.firsttransit.com)	Currently provides school bus service for Canby School District.	Rents	6-hour day (with driver, maint. Insurance, etc) = \$75 per hr. 12-hour day (with driver, maint. Insurance, etc) = \$40 per hr.
Sassy's Cab Company Attn: Tom O'Connor 1115 Molalla Avenue Oregon City, Oregon 97045-3771 (503) 656-7065	Taxi Cab operator in Oregon City.	Not Available	Not Available
Luxury Accommodations Attn: Les Johnson 35501 Gunderson Road Sandy, Oregon 97055-8234 (503) 668-7433	Currently provides transit service for Sandy, Oregon	Owns	Current contract with Sandy is \$35/hr. for 15 hrs/day with 30-passenger bus.
Evergreen Stage Lines / Gray Line of Portland Morgan Dant 4320 N. Suttle Road Portland, Oregon 97217-7718 (503) 285-9845 x 113	Currently provides airport shuttle service for Port of Portland.	Not Available	Not Available
RAZ Transportation 11655 Sw Pacific Hwy Tigard OR 97223_8629 (503) 684_3322	Currently provides shuttle service for Spirit Mountain Casino in Grand Ronde.	Not Available	Not Available
Special Mobility Services Attn: Fred Stoffer 2101 NE Flanders Portland, Oregon 97232 (503) 234-9506	Not Available	Not Available	Not Available

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Contact Information	Reference District	Owns/Rents	Hourly Rates
Laidlaw Transit Inc. 3501 Willamette Falls Drive West Linn, Oregon 97068- 4719 (503) 657-0903	Currently provides city transit service for City of Corvallis, Oregon.	Not Available	Not Available

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Supplemental Contact Information

The following is a list of contacts that may be helpful in the contracting process:

Sandy Area Metro (SAM) Transit Manager: Julie Stevens 38348 Pionner Blvd. Sandy, Oregon 97055 (503) 668 – 5569	Canby Transit Transit Director: Margaret Yochem City of Canby PO Box 930/182 N. Holly Street Canby, OR 97013 (503) 266-4021 ext 251 (503) 266-7961 _Fax Yochemm@ci.canby.or.us
Wilsonville Transit South Metro Area Rapid Transit (SMART) Transit Director: Linda Floyd floyd@ridesmart.com (503) 570-1576	Molalla Transit South Clackamas Transportation District (SCTD) Shirly Lyons (503) 632-7000
Newberg Transit Chehalem Valley Senior Citizens Council Contact: Barbara Brown 101 W Foothills Dr. Newberg, OR 97132 (503) 538-7433 (503) 538-8428 Fax	Corvallis Transit Corvallis Transit System (541) 766-6916

APPENDIX E: SUMMER SHUTTLE PERFORMANCE EVALUATION

An essential component of implementing the Summer Shuttle Pilot Plan is to devise a system to evaluate its performance. The system and methods used for evaluation will vary according to the goals of the City of Sherwood. Depending on the city's objectives, a performance evaluation may be used to:

- Evaluate the existing shuttle route
- Decide whether additional vehicles should be added to the fleet
- Evaluate expenses as part of a budget review process
- Assess results from a change in service provision
- Determine whether service should be expanded, reduced, or modified

The first step in the performance evaluation process is to establish clear and specific goals that the City hopes to achieve. Once determined, the next step is to identify the focus of the evaluation. Traditional transit performance measurement evaluates service in four general categories:

Effectiveness measures the use of the service against the amount of service provided. The number of passengers per hour of operation is an example of an effectiveness measurement.

Efficiency measures the amount of service provided versus the resources required to provide the service. Efficiency evaluation is often closely tied to budget issues. Total cost per trip is a measurement of transit system efficiency.

Quality of service refers to the speed, safety, reliability, and comfort of the service. Quality of service measurements can be obtained through on-board passenger surveys and interviews, or by direct observation.

Impact measurements assess how the service affects the larger community. Impact evaluation can tell an agency how much of the population is being served, how much of the community's transit need is being met, and the extent to which the service contributes to broader goals such as congestion relief, pollution reduction, and employment opportunities. Impact assessment frequently requires the combination of transit system data and data from other sources such as air quality or parking studies.

Once goals are defined and the type of evaluation is identified, the evaluation requires the collection and analysis of data. Passenger counts, on-board passenger surveys, and field observation are three methods of information collection that may be useful for the Sherwood Summer Shuttle.

Because the Summer Shuttle is a free service, fare box revenues cannot be used to obtain passenger counts. Major urban transit agencies often use electronic sensors to keep track of the number of passengers as they board and depart buses and trains. If this technology is not available on the Summer Shuttle, the operator will be responsible for counting and keeping a record of the number of passengers who use the service. It is likely that the contractor will

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have a counting mechanism in place, but if a record of ridership numbers is desired, it is recommended that this be discussed with potential contractors prior to signing an agreement.

On-board passenger surveys are another useful way to collect data on ridership trends and customer satisfaction. Origin-destination (O-D) surveys are designed to provide information about how people use the transit service. In addition to the origin and destination of trips, O-D surveys ask respondents about trip purpose, time of travel, and frequency of use. On-board customer satisfaction surveys are also useful in determining whether the service meets the needs of its passengers, and they can help the operating agency identify areas for improvement. Sample O-D and customer satisfaction surveys are included below.

Finally, direct field observation may be a useful and appropriate evaluation tool for the Summer Shuttle. While on-board surveys can require significant investment in time, labor, and other resources, field observation is a relatively inexpensive and less time-intensive method of information collection. The process is simply to send one or two observers or researchers into the field to observe the shuttle's operation. In a few hours, staff can observe and record information including the number of passengers using the service, various measurements of reliability, vehicle comfort and ease of use, and possibly interview passengers for customer feedback. Observers may also identify problems or areas for improvement in the service. Direct field observation may be especially suitable for a small transit operation like the Sherwood Summer Shuttle.

Sample Origin-Destination Survey

Please take a few moments to complete both sides of this survey. We would like to learn more about your trip and how you use this service.

First, please tell us about the trip you are taking right now:

1. What type of activity or place are you coming from?

- | | | |
|---|--|---|
| <input type="checkbox"/> home | <input type="checkbox"/> personal appointment | <input type="checkbox"/> recreation / entertainment |
| <input type="checkbox"/> work | <input type="checkbox"/> visiting friends / family | <input type="checkbox"/> dining / restaurant |
| <input type="checkbox"/> school / college | <input type="checkbox"/> shopping / errands | <input type="checkbox"/> other |

2. At what time of day did you board the Shuttle?

- | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> 6am – 9am | <input type="checkbox"/> 12pm – 4pm | <input type="checkbox"/> 7pm – 10pm |
| <input type="checkbox"/> 9am – 12pm | <input type="checkbox"/> 4pm – 7pm | <input type="checkbox"/> after 10pm |

3. At which stop did you board the Shuttle?

- | | |
|--|---|
| <input type="checkbox"/> Railroad and Washington | <input type="checkbox"/> Senior Center |
| <input type="checkbox"/> Archer Glen Elementary | <input type="checkbox"/> Pinehurst and Sunset |
| <input type="checkbox"/> YMCA | <input type="checkbox"/> Sherwood Plaza |
| <input type="checkbox"/> Regal Cinemas | <input type="checkbox"/> Ice Arena |

4. What type of activity or place are you traveling to?

- | | | |
|---|--|---|
| <input type="checkbox"/> home | <input type="checkbox"/> personal appointment | <input type="checkbox"/> recreation / entertainment |
| <input type="checkbox"/> work | <input type="checkbox"/> visiting friends / family | <input type="checkbox"/> dining / restaurant |
| <input type="checkbox"/> school / college | <input type="checkbox"/> shopping / errands | <input type="checkbox"/> other |

5. Will you transfer to a Tri-Met bus to reach your destination?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

6. At which stop will you depart the Shuttle?

- | | |
|--|---|
| <input type="checkbox"/> Railroad and Washington | <input type="checkbox"/> Senior Center |
| <input type="checkbox"/> Archer Glen Elementary | <input type="checkbox"/> Pinehurst and Park |
| <input type="checkbox"/> YMCA | <input type="checkbox"/> Sherwood Plaza |
| <input type="checkbox"/> Regal Cinemas | <input type="checkbox"/> Ice Arena |

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Please answer the following questions by marking the answer that *usually* applies to you:

7. How often do you make this trip on Sherwood Shuttle?

- | | |
|--|---|
| <input type="checkbox"/> more than once a day | <input type="checkbox"/> a few times per month |
| <input type="checkbox"/> daily | <input type="checkbox"/> monthly |
| <input type="checkbox"/> more than once a week | <input type="checkbox"/> less than once per month |
| <input type="checkbox"/> weekly | <input type="checkbox"/> almost never |

8. How often do you make this trip (using any form of transportation)?

- | | |
|--|---|
| <input type="checkbox"/> more than once a day | <input type="checkbox"/> a few times per month |
| <input type="checkbox"/> daily | <input type="checkbox"/> monthly |
| <input type="checkbox"/> more than once a week | <input type="checkbox"/> less than once per month |
| <input type="checkbox"/> weekly | <input type="checkbox"/> almost never |
| | <input type="checkbox"/> this is my first ride |

9. How long does this trip take you on the Shuttle (wait and ride, one-way)?

- | | |
|--|---|
| <input type="checkbox"/> less than 5 minutes | <input type="checkbox"/> 20 - 30 minutes |
| <input type="checkbox"/> 5 to 10 minutes | <input type="checkbox"/> 30 - 40 minutes |
| <input type="checkbox"/> 10 to 20 minutes | <input type="checkbox"/> more than 40 minutes |

10. How did you make this trip before the Summer Shuttle existed?

- | | |
|---|---|
| <input type="checkbox"/> drove and parked | <input type="checkbox"/> walked / bicycled |
| <input type="checkbox"/> dropped off by someone | <input type="checkbox"/> other |
| <input type="checkbox"/> carpooled / vanpooled | <input type="checkbox"/> I did not make this trip |
| <input type="checkbox"/> rode the bus | |

11. How long did that trip take you (one-way)?

- | | |
|--|---|
| <input type="checkbox"/> less than 5 minutes | <input type="checkbox"/> 20 - 30 minutes |
| <input type="checkbox"/> 5 to 10 minutes | <input type="checkbox"/> 30 - 40 minutes |
| <input type="checkbox"/> 10 to 20 minutes | <input type="checkbox"/> more than 40 minutes |

12. How often do you ride the Sherwood Summer Shuttle?

- | | |
|--|---|
| <input type="checkbox"/> more than once a day | <input type="checkbox"/> a few times per month |
| <input type="checkbox"/> daily | <input type="checkbox"/> monthly |
| <input type="checkbox"/> more than once a week | <input type="checkbox"/> less than once per month |
| <input type="checkbox"/> weekly | <input type="checkbox"/> almost never |
| | <input type="checkbox"/> this is my first ride |

Thank you for completing this survey.

Sample Rider Satisfaction Survey

Please take a few moments to complete this survey. We would like to learn more about your use and opinion of the Sherwood Summer Shuttle

1. Express your opinion on the following by marking the most appropriate option to the right of each statement:

"The Sherwood Summer Shuttle..."

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Is dependable.					
Is available when I need it.					
Has courteous and friendly drivers.					
Quickly reaches my destination.					
Drops me off close to my destination.					

2. What one improvement do you most want the Sherwood Summer Shuttle to make?

- | | |
|---|---|
| <input type="checkbox"/> More frequent shuttles | <input type="checkbox"/> Earlier hours of operation |
| <input type="checkbox"/> Service to underserved areas | <input type="checkbox"/> Later hours of operation |
| <input type="checkbox"/> More transfer opportunities | <input type="checkbox"/> More direct service |
| <input type="checkbox"/> Year-round service | <input type="checkbox"/> Better information |
| <input type="checkbox"/> Other (please specify) _____ | |

3. Would this improvement make you a more frequent Summer Shuttle Rider?

- ☐ Yes ☐ No

4. Overall, how would you rate the current Summer Shuttle service?

- ☐ Excellent ☐ Good ☐ Fair ☐ Poor

APPENDIX F: OPEN-ENDED SURVEY RESPONSES

Open End Code Frame

Q15 - Code List	
	Extend service geographically
1	To Tualatin
2	To Wilsonville
3	To Newberg
4	To Beaverton / Hillsboro
5	Provide a Sherwood circulator
6	To YMCA
7	To Senior Center
8	To shopping
9	Extend hours of operation
10	Increase frequency of service
11	Increase speed of service
12	Provide more direct regional connections
13	Provide light rail service to Sherwood
14	Improve or provide more stops / shelters
15	Promote transit – make information more available
16	Provide more training to drivers
17	Provide less expensive / free transit
18	Provide more Park and Ride
19	Get rid of transit / Sherwood doesn't need transit
20	I don't use transit
21	Don't change existing service
22	Build more roads / widen roads
23	Improve existing roads
24	Increase speed limit
25	No comment / I don't know
26	Other

Appendix F

The Open-Ended Verbatim section is the written responses to Question 15 on the Transit Needs Assessment Survey: “What can be done to improve transit service in Sherwood?”

Each survey was numbered in the order that it was received and entered into a database. Respondent # indicates which survey the open-ended response came from.

Responses were grouped and coded according to common themes as expressed by survey respondents. If write-in responses pertained to more than one code theme, multiple codes were assigned and recorded in the database and analysis.

Respondent #	Open End Verbatim	Code
001	Bus later than 10:30 pm to Sherwood for 11:20 arrival. Several buses leave downtown Portland after 10:30 pm but only go as far as King City. Need later bus into Sherwood..	9
003	A small transit bus that goes down Hwy 99 to Newberg to Sherwood down Tualatin-Sherwood Rd to Tualatin.	1, 3
004	We have never used the bus in Sherwood and do not expect to, at least not in the short term. Bus service in Sherwood does not meet a need for us at this time.	20
009	Have a late bus from Portland to Old Town until 1am.	9
010	For 8 years I worked downtown and rode the bus every day. Service was usually excellent except for lack of parking. Buses to Tualatin would be great.	1
016	Need it for the kids more than the adults.	26
019	Because transit sites are concentrated in only a few areas in one corridor, there is no "cross-pollination" of service. Only one marked Park 'n Ride in town.	18
020	More accessibility throughout Sherwood-not just one major street. How about Tualatin-Sherwood Rd?	5
021	Wider roads for more cars.	22
022	Bus on Sunset / Sherwood↔Tualatin. Bus down Tualatin-Sherwood.	1
023	Do not currently use.	20
024	We need more stops – more destinations (out of town choices).	12
025	Increase speed limit downtown to 30.	24
026	There is no good bus service to Swan Island area – too many transfers. Better direct routes to NE Portland; better bike paths as we often bike to work to Portland and Beaverton. Clean bike paths so cyclists can use them. Better I-5 access as this road is a mess.	12, 26
027-28	We need a bus going along 7 itch in Wood Haven – several times a day. Thank you for asking.	5
029	95X or other express to downtown Portland that runs later in the morning (later than 8:30 am).	9
032	My schedule and destination are such that I need to use my own vehicle.	20
034-35	Transit services are not needed in Sherwood at this time and in the fore seeable future.	19
036	I don't think the city should spend the money on an expanded transit system.	21
037	Commuter train.	13
038-42	(Tri-Met) stops to early on evenings and weekends. More runs	10
044	Service not necessary for me at this time.	20
046	A route down Roy Rogers Rd to Beaverton, maybe to Beaverton Transit Center or another MAX station.	4
048	Service to Woodlawn; better use of Old Town Park and Ride.	26

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Respondent #	Open End Verbatim	Code
049	Have Tri-Met go by the YMCA.	6
050	Having a Sherwood Transit system would be great. My daughter could use it. Without sidewalks all along Edy Rd. she is limited on where she can walk to.	5
051	Increased teen and senior involvement in the community.	26
053	Need Summer Service.	26
055	Expand transit service to interconnect local areas, such as Tualatin Park and Ride and Wilsonville. Very surprised that no transit routes go down Tualatin-Sherwood Rd.	1, 2
057	No opinion. I live 3 miles outside city limits; I am unfamiliar with this subject.	25
058	More parking at YMCA.	26
059	Keep it! Thanks!	21
060	94X could make another stop between Cinema and Old Town.	14
061	Bus down Tualatin-Sherwood Rd. Bus to the YMCA – perhaps a loop through Sherwood to YMCA down 99W.	1, 6
063	As of now, I am still driving, but I don't know how long that will go on – then I will be totally dependant on Tri-Met. I live at Sunfield Lakes Apt. – you figure!	20
064	Have only used one time to Portland Have service from Sherwood to Wilsonville, Tigard, ***can't read writing	2
066	Bus to the YMCA, all parts of Sherwood.	5, 6
068	Have a mini-bus which travels between Wilsonville and Sherwood. One which would connect with SMART in Wilsonville and would also make several stops in Sherwood – YMCA – theater – shopping, etc.	2, 5
069	A utility shuttle in Sherwood is a great idea and a way to boost useage of local businesses and reduce traffic. Potentially a way for kids to get to school.	5
071	How would it (Sherwood transit service) be funded? If it were self-funded ok. Use highway fuel tax to repair and maintain existing roads and build more.	22, 23
072	My teenager would use the bus the most, if only it went where he wanted to go. Have a bus route running from downtown Sherwood to Tualatin, via SW Tualatin-Sherwood Rd, in both directions.	1
073	I am not sure as I drive a car to all destinations.	20
074	Service to Tualatin, Wilsonville, Newberg. <u>Increase speed.</u>	1, 2, 3, 11
075	Improve traffic safety so kids can ride their bike anywhere in town safely. Have renters pay their own transit tax, so they see how expensive it is.	23, 26
076	Bitter pick ups – more direct connects to other NW towns.	12
077	Tri-Met stop at YMCA.	6
078	Nothing – it's great now with the express service.	21
080	Wish could get really express bus from <u>Sherwood</u> now drive to Tualatin! More express services to Portland.	10, 11
081	Ensure that Tri-Met buses traveling from Sherwood to Portland <u>all</u> go through Portland to the east side (near Lloyd Center). <u>All runs</u> each day.	12
083	How about service from Sherwood to Tualatin via Tualatin-Sherwood.	1
085	Covered bus stops (Sherwood Blvd and Century Blvd.).	14

Respondent #	Open End Verbatim	Code
086	Sherwood needs to work with Tri-Met to provide transit service to Tualatin, Beaverton, and Hillsboro.	1, 4
090	Provide light rail direct to downtown Portland and Portland Airport.	13
091	The idea of a bus that only goes through Sherwood to connect shops, downtown, the Y may be very helpful to many.	5
094	Go to YMCA.	6
096	Make bus go faster.	11
097	Have one.	5
098	Too many people use Tri-Met to commute to work. Let the YMCA buy a bus to transport people around Sherwood and leave Tri-Met alone.	21, 26
099	Travel in Sherwood would be greatly improved if all of Tualatin-Sherwood Rd. was made four lanes. Just get rid of left turn lane and move sidewalk and bike path on other side of utility poles.	22, 26
100	I used to take the 95X 2 times a day until my work day start time changed from 8:00 am to 9:00 am. Neither of the express buses leave Sherwood late enough – the last one is at 7:47 am. I therefore drive to Tualatin and catch a 96 at 8:30. I wish the express buses to downtown were better scheduled and more convenient. I currently only take the Sherwood buses if I have to be to work early.	9
101	Max Line to Portland, more lanes on Tualatin/Sherwood Road	13, 22
103	Would be happier if first 94 or 95 went to Lloyd Center	12
107	Make it to Newberg	3
110	Extend to west of 99 and YMCA Transit to Tualatin and Wilsonville would be great!	1, 2, 5, 6
112	If the YMCA offered a Tri-Met Park & Ride or if there was a stop near Pinehurst & Sunset that would be a great additional convenience Do not cancel Tri-Met! Sherwood transit and Tri-Met would serve different purposes & both are needed.	18, 21
115	Offer long distance / shuttle service or car pooling? To Portland and Salem	12
118	1. Bus route from Tualatin or Boones Ferry Transit Center to Sherwood 2. Route the existing bus to Sherwood down 99W to Sunset (YMCA) to S. Sherwood Blvd. To Old Town to N. Sherwood Blvd. (Sr. Center & Library) to Longor (Sherwood Marketplace) to Tualatin-Sherwood Rd. to 99W.	5, 12
119	Too bad this isn't on your website – save postage Shuttle bus btwn Sherwood and Tualatin	1
122	I only wish there were more 94X buses & that they were even faster.	10, 11
123	Would like Tri-Met to Tualatin. I only need service to Portland or to Tualatin to my doctor. Everywhere else. I am handicapped.	1
124	Less stops along Hwy 99 to Portland – only stop at major Transit Centers	11
125	I am very pleased.	21
126	Later service in the evening.	9
127	A route to Tualatin	1
128	Widen, more lanes on Tualatin / Sherwood Road	22

Appendix F

Respondent #	Open End Verbatim	Code
129	<p>If service was better & had a direct line to OHSU I would use it more often. It's much faster to drive but hard to park.</p> <p>I would love a bus that goes directly to OHSU for Tri-Met maybe start in Newberg or Sherwood, stop @ Tualatin? Tigard & then go to OHSU. It's important to have transportation for the aging population in Sherwood.</p>	12
130	<p>I traveled via 12X or 95X when I attended PSU. It was almost an hour commute, but it allowed me to do some hw reading.</p> <p>To have a bus system w/in Sherwood would be a dream. Old Town &/or the YMCA are a good distance from my home, but close enough to walk to...one way ☺ To ride back one way would solve my problem! An inexpensive taxi service could be an alternative.</p>	5
132	We need a bus that goes down Tualatin-Sherwood Rd. to Tualatin, the park & ride, the hospital in Tualatin, etc.	1
133	Don't create own busing.	21
134	Make available to Tualatin down Tualatin-Sherwood Rd.	1
135	Use the newer buses (series 25 or 26)	26
136	Doesn't exist to improve. Don't need	21
137	Provide local service & service to Fred Meyer	5
139	<p>I would like to see a bus line that goes directly to Tualatin from Sherwood. Please don't opt out of Tri-Met. I doubt your new shuttle would run often enough if I have to take my cats to the emergency clinic in Tualatin after hours. Also my bank and veterinarian are there. I would be forced to buy a car & I don't like to drive</p>	1
140	There needs to be service between Tualatin & Sherwood on <u>Tualatin-Sherwood Rd.</u> I feel that this is <u>extremely</u> important!	1
141	Improve roads in Washington Heights. Finish Transportation Master Plan.	23, 26
144	Be more considerate to the swing shift worker who lives in Sherwood & make later runs from Portland Downtown to Sherwood downtown to compensate.	9
145	Lower price of 18 and under.	17
146	There is a lot of people that depend on Tri-Met for transportation to & from work everyday. Do not get rid of Tri-Met – you will have a lot of people mad.	21
148	<p>No need to transfer buses which is a HUGE Plus!!</p> <p>More Tri-Met <u>Paved</u> parking areas next / close to stops. Tri-Met does a great job.</p>	18
149	I work in Beaverton and it takes twice as long to get to work via bus. Also my hours are irregular so cannot be sure I could get a bus very early in the morning or late at night.	9
151	<p>But need more buses during rush hours before / after work.</p> <p>Make transit service available to children under driving age to get them to events around town (soccer, ice rink, theater, stores).</p>	5, 10
152	Make it more available.	9, 10
153	I would like a bus that stopped at the YMCA – and would go to Washington Square or downtown Portland.	6
154	No bus service from Sherwood to Tualatin – direct; must go down 99 to Tigard;	1

Respondent #	Open End Verbatim	Code
	takes 45 min. vs. 15 min. drive down Tualatin-Sherwood!!	
	Bus service direct from Sherwood to Tualatin down Tualatin-Sherwood Road	
155	The service is very good and does not need changing. If it ain't broke – don't fix it!	21
157	Needs to be more accessible to the Woodhaven area.	5
160	Service to Tualatin	1
163	Need to go to YMCA – Sherwood pls.	6
164	Since I use my car for all local Sherwood destinations, I am not qualified to comment.	20
167	Serve between Beaverton – Aloha using Roy Rogers Rd → Murray Rd. to TV Hwy / Farmington	4
166	Provide service from YMCA down Sunset to downtown Sherwood.	6
168	<ul style="list-style-type: none"> • Advertise transit services • Promote community use of transit w/ awareness & community challenges 	15
169	↑'d locations to connect.	26
170	Loop thru town that includes YMCA	5, 6
174	Stop development of new houses and businesses.	26
175	More routes and earlier / later times.	9
176	Provide service to west side of Hwy 99 / Edy & intersections	5
177	For my needs, service currently excellent.	21
178	Sherwood only service would be valueless!!!	21
181	<ol style="list-style-type: none"> 1. Also an express from Sherwood straight downtown. 2. There is not enough parking in Sherwood to ride the bus without fear of being towed. A bus that would pick up people at stops to connect with main bus would be a plus. 	5, 11
182	Later bus service past midnight so employees can go home. Have Tri-Met run every 15 mins. When Portland events, fireworks happen there's no return bus service.	9
186	Don't live here so no comment.	25
187	Improve Dial-a-Ride; add more routes & times; Tualatin to Sherwood & 99 loop.	1, 10, 15
188	To have a bus down Tualatin – Sherwood Road to Tualatin.	1
189	<p>My daughter lives with us is janitor at St. Francis Church</p> <p>I haven't ridden on a bus since I started coming here. I think I cam here for the first time early in 2001.</p> <p>Vera Mandel (503) 625-6896</p>	20
190	Add more routes & times; start new line Tualatin to Sherwood & 99 or I-5 loop	1, 10
191	Park & Ride; faster and more frequent; service to surrounding communities.	10, 11, 12, 18
193	Nothing	21
194	Not sure.	25
196	Have some transit within Sherwood *we don't use transit yet, but will as we age.	5
198	Bus to Tualatin from Sherwood.	1

Appendix F

Respondent #	Open End Verbatim	Code
199	Service to Tualatin City service to connect to Downtown bus 12.	1, 5
201	Add MAX line by Old Town Sherwood area with bus services out to our area (17749 Sw Nels Dr.) Something needs to be done about all the traffic in Tualatin and Sherwood.	13
203	At least hourly service, serving <u>entire</u> city and surrounding.	5, 10
204	I don't use your service.	20
205	List times more available to public.	15
206	More often, cheaper – esp. for non-driving seniors	10, 17
208	Better roads – fill in the holes!	23
210	Make transit service from Tualatin to Sherwood instead of having to take bus to Tigard, transfer then go to Sherwood.	1
211	Fine – no opinion.	25
212	?	25
218	The more traffic the more there is going to be a need. I have a feeling eventually I will have to use it.	26
219	Teach drivers how to stop smoothly	16
224	On the ½ hour instead of the hour	10
225	<u>Direct</u> route to Wilsonville & Beaverton – then I might use <u>daily</u> .	2, 4
227	Expand the service area.	12
228	I don't know.	25
230	I recently moved to Sherwood so I don't know.	25
231	Upgrade Old Town Streets. Widen Tualatin-Sherwood Road to two lanes in each direction from Tualatin to 99W.	22, 23
234	It is fine for those who use it. I don't.	20
235	More frequent non-stop transit service to Portland and airport.	10, 12
241	?	25
242	Rush hour service between SW Sherwood & Tigard / Beaverton	4
244	Cleanliness of vehicles.	26
245	Extend to Newberg.	3
249	Never use the bus.	20
250	Less bus transfers from Downtown Portland.	12
252	To Newberg!	3
253	Route from west Schols & Roy roger to YMCA or a connect to Wilsonville	2, 5
255	A route that went from Sherwood to Tualatin direct.	1
256	Have it come farther out.	12
257	Go to Newberg.	3
266	Service to Tualatin.	1
267	More stops besides downtown. Need to go outside to some areas.	12
269	Repair Sherwood's roads! More frequent buses or mini bus services service on Tualatin-Sherwood Road to I-5.	5, 10, 23
272	More express buses after 7:30 a.m. School kids catch <u>their</u> buses at 7:38. There's no time to get to an express bus. Also, express service i.e. 94X vs. 95X and which stops they make is <u>very</u> confusing.	10
274	Need bus shelters!!! (Cinemas & also 12 th)	14
276	Stop messing with Tri-Met! Please don't pull Tri-Met. If you pull Tri-Met out of Sherwood I stop doing business there! – (As will a lot of others!)	21
278	Response: Very dissatisfied I have to drive to a bus stop	14

Respondent #	Open End Verbatim	Code
	It would be nice to be able to walk to bus stop ¼ mile or so. (Woodhaven Area Stellar Drive)	
281	A bus service to/from Wilsonville would be useful. If the city could convince the SMART bus (Wilsonville) to come out to Sherwood, I would use it to commute a few times per week.	2
282	Trolley car or some charming painted van / bus for local service would add to the small town feeling.	5
283	Have more p.m. service.	9, 10
284	No response Unable to get to bus stop I need service from my home to i.e., Senior Center, YMCA, shopping, Kaiser in Tualatin – (taxi service or shuttle bus).	1, 5
285	Sherwood needs service for the elderly – pick up at their homes to access i.e. Senior Center, YMCA, shopping, Kaiser Med Ctr in Tualatin etc. Taxi service or a shuttle bus.	1, 5
286	More routes for business commuters.	12
288	To airport PDX once!	12
290 291	Appoint person to be in charge and responsible for execution of the program.	15
292	Several times a year take Tri-Met to downtown Portland for recreation. Used to work in Wilsonville. Took the bus several times – but difficult because of all transfers. Need Tri-Met route to Tualatin via Tualatin-Sherwood Rd.	1, 2, 12
293	Need more direct routes to Convention Center , Expo Center, Saturday Market, Riverfront, etc.	12
294	Response: Very Satisfied Need Wilsonville service!	2
295	More often.	10
296	I am completely satisfied with the existing service.	21
297	Extend the 64X into Sherwood.	26
300	Actually providing it.	5
301	Covered stations.	14
302	Have bus system that goes directly from Sherwood to Tualatin and a bus route from Tualatin to Oregon City.	1
304	Better use of Tri-Met	26
308	To go outside the Sherwood area near Rein Rd hard for people that live out their to use the transit system.	12
309	Later at night; more on weekends; more destinations – Beaverton & Tualatin.	1, 4, 9
310	Provide more service for seniors.	26
314	Better transit to Portland downtown.	26
316	A local bus traveling from outlying areas (Woodhaven, Oregon Trail, YMCA) to park and rides	5
318	Service to YMCA, closer to grocery stores.	5, 6, 8
319	A line to Tualatin and back.	1
326	Later at night; more often; something direct to Tualatin & Beaverton.	1, 4, 9, 10

Appendix F

Respondent #	Open End Verbatim	Code
329	Inform community on carpool opportunities and cost i.e. to Hillsboro.	15
330	Make it free.	17
331	Leave it alone.	21
333	Bus stop at YMCA.	6
335	Since I live outside Sherwood city limits, I wouldn't use a transit service, since I would have to drive to pick up point. P.S. – Since I can't / didn't vote for Mayor Cottle my opinion doesn't count anyway.	20
337	Keep or improve service to downtown Portland! More express buses!	11
341	Believe it or not, if you establish bus service departing every 5-10 minutes – everyday – people will use it. Like China, Europe.	10
342	A bus between Sherwood and Tualatin is needed.	1
343	I use SMART from Wilsonville to Salem. Would like a connection from Sherwood to Wilsonville. I think a bus connection with Tualatin transfer station would do a great deal of good to reduce all the congestion on Tualatin-Sherwood Hwy.	1, 2
345	Light rail – MAX connection.	12
346	Hwy 99 should have no stop lights. Frontage. Eliminate stop signs, traffic lights and increase road size. This community desperately needs an expressway connection to I-5.	23
347	Light rail from Wilsonville, through Sherwood, to Beaverton and Hillsboro.	2, 4, 13
348	Local bus service would be nice, but what we <u>really</u> need is service between Sherwood and Tualatin.	1, 5
349	Connect to Tualatin & move around Sherwood.	1, 5
352	Faster express to downtown – more parking for park and rides. RAIL SERVICE!	11, 13, 18
354	It is very inconvenient to have to go to Tigard & transfer to get to Tualatin when it is so close to Sherwood. Need a bus to run Tualatin-Sherwood Road.	1
355	I occasionally take the bus to Portland and to the airport. I love that I can go to the airport without transferring to another bus!	21
356	None that I know of. I just live in Newberg and only come to Sherwood for work.	21
361	Have more early am and early evening bus routes from Portland to Sherwood. Also, more routes to Old Town.	10
362	Service expanded down 99W to at least Sunset Blvd. Service down Sunset Blvd. To connect to Old Town Sherwood.	5
363	Better service, by adding extended routes.	12
364	More buses.	10
366	More stops!!	14
367	Go all over town.	5
369	Offer service to everyone.	26
371	Make it available to <u>ALL</u> .	26
372	Add extra lanes to Tualatin-Sherwood Rd.	22
375	MAX to Sherwood.	13
378	Expand service to include schools & routes other than N. Sherwood / Langer / 99.	5
388	Route should go by more often and sooner.	10
395	Routes should go by more often (sooner).	10
402	Light rail from Sherwood.	13

Respondent #	Open End Verbatim	Code
404	Direct Rt. To Beaverton transit center.	4
407	More stops	14
408	Added service on Oregon St. (South of Railroad).	5
409	We live between Sherwood & Wilsonville - service <u>within</u> Sherwood wouldn't help us, because we have to drive to Sherwood anyway.	26

APPENDIX G: E-MAIL RESPONSES

From: Charla Meyer charlam@stmaryspdx.org
To: "sherwoodsurvey@hotmail.com"
Subject: Sherwood Transit Survey
Date: Wed, 3 Apr 2002 08:33:15 -0800

It is hard to believe that the City of Sherwood would consider getting rid of Tri-Met. Do you have any idea how many people from the Sherwood/Newberg area use Tri-Met to commute to work. Let the YMCA buy a bus to transport people around Sherwood if that is what is needed. The point of using Tri-Met is to get people out of their cars to help with pollution, traffic and parking. What are you thinking? Believe me, this will one of many e-mail responses to your survey. You are making a lot of people angry and upset- not good public relations for Sherwood.

Charla Meyer

From: "DEBRA MORGAN" fmorgan60@msn.com
To: sherwoodsurvey@hotmail.com
Subject: gazette survey
Date: Wed, 3 Apr 2002 20:21:09 -0800

I can't believe you are not willing to let me fill out the survey on the internet.

This whole proposal stinks of special interest groups and ill conceived ideas. Not only can the City of Sherwood NOT afford to form their own transit district, but it is also something totally unnecessary. Tri-Met does a very good job meeting the needs of most of Sherwood's citizens, and it is impossible to make everybody happy. If Sherwood's major complaint is no service to the YMCA, Tri-Met has shown a willingness to change and grow. It often takes many letters and phone calls, but Mr. Hansen and his staff are continuously trying to serve more people.

I feel the use of mass transit would suffer a huge blow if Sherwood decided to form their own system. There would be so many negative issues to overcome that failure would almost be a foregone conclusion: Initial start up costs, staffing, fuel costs, salaries...the list goes on and on.

And I, for one, would be upset to have to meet more than one bus, juggle my schedule to meet various time points, often have to be in inclement weather more than once per ride, and generally have to make life style changes because of an ill informed decision.

Please stop this senseless use of taxpayers time and money on something that is not needed. If the powers that be thing we have extra money to toss around, how about fixing some of the streets instead of creating a situation that will inevitably lead to more traffic (I personally would drive more often) which would cause the streets to continue their disintegration.

Fred G. Morgan
16116 SW Sunset Blvd.
Sherwood, OR 97140

Appendix G

From: "Stan Hiller" sh.kh@verizon.net
Reply-To: sh.kh@verizon.net
To: sherwoodsurvey@hotmail.com
Subject: Sherwood Bus Survey
Date: Fri, 5 Apr 2002 19:24:41 -0800

I cannot believe you, a University, do not have this survey on the internet. The city of Sherwood has a web site and most people do have computers at home or at work. This survey does not take into consideration the people who do not get the Gazette, but do use TRI-MET bus service in Sherwood.

The article in the newspaper was small and written at grade school level. Sherwood should be getting the word out on how simple and convenient it is to use the TRI-MET bus. A Sherwood bus service could not compete with the good service of TRI-MET. Sherwood can't afford to fix its streets yet, they think they can afford to tax their citizens for their own bus service along with the additional costs (i.e. salaries, staffing, buses, fuel, and shelters).

TRI-MET offers express buses to downtown Portland, something Sherwood could not offer. As a bus rider, making transfers in bad weather and lost time waiting for a transfer is non-productive and would only cause more car congestion on the poor streets of Sherwood. Railroad Avenue in Old Town is a disgrace and it is a miracle that the city has not been sued after one of their parade events or booth exhibits due to the poor road condition.

If our Sherwood city planners had done a better job of site selection we would not have the YMCA out in a remote area, but close to the Ice Rink and shopping areas. Then TRI-MET bus service would not have been such an issue. Has there been any investigation of having Newberg's Links bus offer service on Sunset Boulevard to accommodate Woodhaven and the YMCA?

A TRI-MET bus rider for over 6 years,
Stan Hiller
16433 Wildlife Haven Ct.
Sherwood, OR 97140
SH.KH@verizon.net

From: "Rae Hill" Rae.Hill@LASOregon.org
To: sherwoodsurvey@hotmail.com
Subject: Sherwood Transit Survey
Date: Wed, 3 Apr 2002 09:02:53 -0800

Good Morning!

I have a questions concerning the Sherwood Transit Survey. What is the bottom line here? Is the City trying to discontinue the Tri-Met Service to Sherwood and replace it by Sherwood transit that would travel the streets of Sherwood, pick us up and drop us off at one of the Tri-Met Centers? Is this in addition to the current Tri-Met Service?

Many of us ride the bus each and every day and would be excessively unhappy if we had to transfer from one bus to another. That would totally defeat the purpose for many of us of not driving our cars. We have finally got a pretty good transit system and we DO NOT want that discontinued or messed with in any way what so ever!!!!

Now if the City has the money to get another bus service going, they might just want to think about first improving the roads or both cars and buses. If getting service to and from the Y is the big moving force - let the Y pay for the bus. Heaven knows they charge enough for services and membership now!

I would greatly appreciate it if you would respond to this email and let me know what the real story is behind the survey. I've lived in Sherwood for over 9 years and have learned that things aren't always as simple and clean as they are usually presented to us.

Thank you for your attention to this.

Rae Hill

APPENDIX H: CASE STUDIES OF LOCAL TRANSIT SYSTEMS

Below are some similarly sized cities close to or within the Portland Metropolitan Region where local transit systems have been or are in the process of being implemented. Transit services vary greatly across jurisdictions, from a shuttle geared to local employees to a full transit system.

Wilsonville

The City of Wilsonville was the first jurisdiction in the Portland Metropolitan area to form a transportation association, the Wilsonville Innovative Transportation Association (WITA), in an effort to improve service for local residents and to local destinations. WITA was successful in petitioning Tri-Met to withdraw and form an independent city-run transit system (later to be known as SMART). In 1989 the City provided its first service, a free “next day” dial-a-ride service. Fixed routes began in 1993, geared to major employer sites from Oregon City, Tualatin and Barbur Blvd.

Since 1989, ridership has grown from a little over 7,000 to over 211,000 in 2001. Adults make the great majority of riders (71.6%) followed by youth (14.1%), seniors (8.3%), and finally the disabled (6%). Four routes are currently in operation, with connections to Tri-Met in Portland and Cherriots in Salem.

Rides are free, and dial-a-ride users must schedule a ride at least 24-hours in advance.

Canby

In 2001 Canby opted to withdraw from Tri-Met and run its own transit system under a new entity, the Canby Area Transit. As is the case with Wilsonville, the City of Canby believes that it can provide a service better targeted to local needs and destinations.

Fixed route service is expected to start September, 2002. It will consist of a loop throughout the city all days of the week. It is expected that once the system is fully operational, service will be twice what is currently provided.

Canby’s service will be free of charge to users, financed with a tax on businesses within the urban growth area. The tax rate is expected to be lower than is currently paid to Tri-Met and may be supplemented where possible by federal and state grants.

Sandy

The City of Sandy provides two transit services. The Sandy Area Metro’s (SAM) fleet of 23 passenger wheelchair accessible buses (with bike racks) offer express service from Sandy to Gresham on Kelly Street along Highway 26, and local service within city limits. Service is free and is based on an hourly schedule, except during peak commute times when service is provided every half an hour.

The other service, provided by the Sandy Transit Area Rides, is the local dial-a-ride service. The fare is \$1.00 for adults, and \$0.50 for children 8-12 years old. Children under 8 traveling with an adult as well as persons with disabilities ride free. A call for reservation must be placed at least 24 hours in advance.

Appendix H

Funding comes from a payroll tax on local businesses (lower than Tri-Met's current payroll tax rate) as well as grant funding.

APPENDIX I: GUIDELINES FOR EFFECTIVE SUBURBAN TRANSIT

Rapid decentralization of population and employment over the past several decades has greatly reduced transit use in the United States. As Cervero (1994) has stated, “today transit competes with the automobile in an environment of low densities, dispersed trip patterns, abundant free parking, cheap fuel prices, and inhospitable walking environs.”

Constraints

Many studies have identified these factors as adversely affecting transit in suburban areas. Traditional fixed-route services radially linked to downtowns are ill-suited for lateral suburb-to-suburb journeys, today’s most rapidly growing travel market. Densities and development in suburbs have not been conducive to transit riding (ibid., TCRP Report # 55, 1999, Meyer and Miller, 2001). Transit operation costs are often higher in the suburbs due to lower densities and longer trip lengths (TCRP Practice # 14, 1995).

Demographic trends have also worked against transit. Generally, suburban residents are more affluent and have greater vehicle ownership per household than residents in inner cities (Meyer and Miller, 2001). Suburbs also commonly produce “high rates of off-peak and weekend travel, when bus headways tend to be longest” (Cervero, 1994).

Opportunities

Despite all these powerful deterrents, several trends could work in favor of transit over time. “Suburban centers are evolving into relatively dense, mixed-use concentrations...suburbs are also becoming home to increased numbers of senior citizens, ethnic minorities, and new immigrants-groups that have traditionally been [more] transit dependent.” Higher-priced, tight housing markets have also created a demand for condominiums and apartments. Lastly, some metropolitan areas such as the Portland Metropolitan Region are actively promoting more dense, transit-oriented developments (TCPR # Practice # 14, 1995).

Guidelines

There are many examples of small suburban areas where the provision of transit is succeeding in increasing ridership and offering an effective alternative mode of transport to more diverse locations.

The many transit agencies that are aggressively pursuing the suburban market can offer and have seen their ridership numbers significantly increase can offer guidelines and innovative approaches to jurisdictions contemplating the provision or augmentation of transit service. The following key findings were extracted from the Transit Cooperative Research Program’s “Innovative Suburb-to-Suburb Transit Practices” (1995) and “Guidelines for Enhancing Suburban Mobility Using Public Transportation” (1999), and Cervero (1994).

Practices to Avoid

- Dial-a-ride services that are not linked to other jurisdictions and transit services or are confined to a zone have consistently resulted in extremely high rider deficits.
- Midday shuttles targeted at suburban employment centers have also been unable to attract substantial legions of loyal customers, apparently due to the availability of free parking.

Appendix I

- Experiences with operating specialized, crosstown shuttles between low-income neighborhoods and suburban job sites have generally been unsuccessful.
- Major urban transit agencies serving crosstown, circumferential trip making have incurred extremely high deficits from said service.

Practices to Adopt

- Develop services around focal points. The most popular destinations in suburbia are shopping centers/malls and office parks, followed by industrial parks, school/training centers, residential developments, and medical facilities. Parks and recreational centers ranked last, perhaps reflecting the auto-oriented nature of suburban parks and the general lack of public green spaces in the suburbs (a problem Sherwood does not share).
- Operate along moderately dense suburban corridors. Connect land-use mixes that consist of all-day trip generators.
- Serve transit's more traditional markets such as lower income, blue-collar neighborhoods.
- Link suburban transit services, especially local circulators and shuttles, to the broader regional line-haul network.
- Use of smaller vehicles for lower costs, more flexibility, reliability, acceleration, and access to local roads.
- Use demand-responsive services. 43% of transit properties operate some form of this service. Many jurisdictions (including Wilsonville's SMART) have started their transit services with this type of service.
- Be flexible in routing.
- Utilize targeted marketing approaches to the business community and other demographic segments of the population.
- Form partnerships with the private sector.
- Involvement in land use and planning issues.
- Make transit more "automobilelike", spreading out, casting a larger net to allow more patrons to get from anywhere to everywhere.
- Use employer-sponsored van pools and subscription services which are suited mainly for highly dispersed suburban markets such as office parks.
- Plan with the community. The end product will be more likely to succeed as program gets to be promoted, better scrutinized, and receive stronger political and financial support.
- Develop supportive policies, plans, and regulations.
- Establish realistic goals, objectives, and standards. A transit service may not significantly reduce VMT or improve air quality, but may provide valuable service to transit dependent residents and help relieve congestion during peak times.
- Experiment with pilot programs. There is inevitably a degree of risk involved in providing transit service. The challenge is to be flexible and be ready to identify areas of improvement. Performance measures need to be established and closely monitored.

- Be patient. Transit innovations take normally 1 to 2 years to mature and for markets to develop.

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